A PHONETIC AND PHONOLOGICAL STUDY OF THE NOMINAL PIECE IN ADANGME

Thesis submitted for the Degree of Doctor of Philosophy of the University of London

by

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ABSTRACT

Chapter 1 provides a background of the Adangme-speaking area, reviews previous linguistic work on Adangme and defines the scope of the present study.

Chapters 2 and 3 are concerned with the grammatical description of the Nominal Piece: the former deals with a definition of the Nominal Piece and with the word-classes of which the Nominal Piece is composed; the latter describes the relevance of the Categories of Person and of Number to the Nominal Piece.

Chapter 4 presents a detailed description of the vowel and consonant sounds of Adangme. The description draws as well on kinaesthetic evidence as on the following instrumental data, all of which contribute an additional dimension to the phonetic description: palatograms, kymograms and spectrograms.

The rest of the thesis (namely Chapters 5, 6 and 7) describes the phonology of the Nominal Piece. Chapter 5 provides a prosodic analysis of the syllable structure of Adangme and reviews some loan-words in Adangme. In Chapter 6 is presented a prosodic statement on nasalization in various nominal constructions.

Finally and by reference to tonograms of selected utterances, Chapter 7 deals with Pitch, Tone and Intonation in words of varying syllabic types, in certain grammatically-delimited Nominal Piece types, and in Sentences comprising a Nominal Piece and a Verbal Piece.

A bibliography of works quoted and of some of the works consulted appears at the end.

ACKNOWLEDGEMENTS

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ABBREVIATIONS

D.Pgm(s)	Direct Palatogram(s)
Pgm(s)	Palatogram(s)
Sgm(s)	Spectrogram(s)
Tgm(s)	Tonogram(s)
Kgm(s)	Kymogram(s)
L	Larynx tracing
M	Mouth tracing
N	Nasal tracing
NP(s)	Nominal Piece(s)
Cs	Centiseconds
cp	compare
Hz	Hertz, cycles per second
kHz	kilo-Hertz
F1	First formant
F2	Second formant
F3	Third formant
F4	Fourth formant
`	Low tone
'	High tone
VP(s)	Verbal Piece(s)
I. P. A.	International Phonetic Alphabet
adv.	adverb
cf	refer to

LIST OF PALATOGRAMS

1. mí
2. bí
3. bè
4. mè
5. bé
6. mú
7. tɔ̀
8. tí
9. dɔ̀
10. kɔ̀
D10. kɔ̀
D11. gɔ́
D12. kpɔ́
D13. gbɔ́
14. nɔ̄
15. ŋɔ̄
D16. ŋɔ̀
D17. ŋmɔ̄
18. lɔ̀
19. l̩ɔ̄
20. sɔ̀
21. zɔ́
22. tʃo
23. dʒɔ́
24. jɔ̀
25. wɔ̀
26. ɜɔ̀
27. nra
28. záá
29. zɰáá
30. ŋà
31. ŋrā
32. tɰɔ́ɔ́
33. nà

LIST OF KYMOGRAMS

1. mí
2. mí
3. we
4. sɛ́
5. ɔé
6. tɛ̀
7. nɛ̀
8. ta
9. gbà
10. nà
11. àkɔ́dʊ́
12. kɔ̀
13. kɔ̀
14. mɔ̀mɔ̀
15. jɔ̀
16. e plɔ ɔ
17. buɲukú
18. tʃʊ́
19. ànʊ̀nʊ̀
20. kɛ̀
21. ó ɔ̀kpɔ̀ɲɔ́
22. ɲmɔ̀ɲmɔ̀
23. ɔpɛ̀
24. àhɛ́
25. tàtʊ́
26. dɛ̀
27. dɛ̀dé
28. kɔ̀
29. kɔ̀
30. gà
31. gɛ̀
32. gɛ̀
33. kpɛ̀
34. ɔ̀kpɔ̀é
35. gbà
36. gbɔ̀ɔ̀
37. táàgbɔ̀
38. tá àgbɔ̀
39. té? àgɔ̀ɔ̀
40. mí
41. nà
42. ɲɔ́
43. sɔ̀ɲɔ̀
44. ɲɔ̀
45. ɲmɔ
46. l̩ɛ̀mí
47. l̩ɔ
48. lɔ̀

LIST OF KYMOGRAMS (Continued)

49. e plɔ ɔ
50. e blɔ ɔ
51. fã́
52. vónú
53. àsá
54. zó
55. àzé
56. tɯɔ
57. dɯ́
58. zèzɯè
59. nra
60. tʃɔ
61. tʃrɔ
62. dʒrá
63. ɲrã
64. è slèé
65. flɔ̃
65a. è flɔ̃́
66. hã
67. kàɔ́hìɔ
68. kùtʃá
69. kòdʒó
70. júmũ̀ũ̀
71. we
72. gbì
73. kpì
74. è sí
75. jójròó
75a. sàsèé
76. sàsèé
77. bɔ́ ɔ
78. bɔ̃́ ɔ̃
79. wà nã̀? àgbó
80. wà nã̀:gbó
81. nànèé
82. nànèé
83. nɔ̃́ ɔ̃
84. nra
85. sasé

LIST OF SPECTROGRAMS

1. hĩ:
1a. ɪ̃ [↗], ɪ̃ [↘], ɪ̃
2. hi:
2a. i [↗], i [↘], i̱
3. hɛ:
4. hɛ̃:
4a. ɛ̃ [↗]
5. hɐ:
5a. ɐ [↗]
6. hɑ̃:
7. ha:
8. hɔ:
9. hɔ̃:
10. ho:
11. hu:
12. hʊ̃:
13. è blé pè kòfí
14. è bíé ɖɔ́ kòfí
15. è nʊ̀ hío pé
16. è nʊ̀ hlɔ́ pé?
17. sé
18. sè
19. àgbàé
20. àpàá
21. àbé
22. átɔ̀
23. àdàá
24. áko
25. ágó
26. àkpé
27. à gbé
28. té? àgbò
29. m:à
30. n:à
31. ɲ:à
32. ŋ:ã
33. ŋm:ã
34. a lɔ
35. à lé
36. àfá
37. à vá
38. àsá
39. àzé
40. òhé
41. àtʃú
42. àdʒà
43. a je
44. àwí
45. lsà, fsé?

LIST OF TONOGRAMS

1. mɛ̀
2. ɔ̀kpɔ̀
3. tàbá
4. mɛ̄
5. pɛli
6. sĭnɔ́
7. mɛ́
8. ánɔ̀
9. há fɛ́
10. nɛ̃mlɔ nɛ̄nɛ
11. há sɛ̀
12. ó mɛ̀mɔ̀
13. ó womí
14. ta mɛ́
15. mɔtɔ̀ flákú
16. mɛ̀ ɛ̄
17. mɛ̄ ɛ̄
18. ɔ̀kpɔ̀ ɔ
19. mɛ́ ɛ̄
20. mɛ̀ nɔ
21. pɛli nɔ
22. tɛ́dʒí pɔ̀pɔ̀ɛ́
23. ɔ̀kpɔ̀ ɔ lá
24. ɔ̀kpɔ̀ ɔ ba
25. ɔ̀kpɔ̀ ɔ dʒɛ̀
26. i nɛ̀ ɔ̀kpɔ̀ ɔ
27. mɔ̀ àgbɔ̀ nɔ ɔ

1. THE ADANGME LANGUAGE AND PEOPLE

1.1. ADANGME[1] is a tone language that belongs to the KWA sub-group of the NIGER-CONGO family (see Greenberg 1963, p.8; Voegelin 1964, pp. 14-15). As the map facing p. 12 shows, it is spoken mainly in south-eastern Ghana in an area bounded roughly by a line drawn from the coastal town of Kpone eastwards along the coast to Ada, then up north along the course of the Volta River to Kpong, then north-westwards to Bisa and along the foot of the Akwapim mountains to Dodowa, and then down south again to Kpone. Outside Ghana, there is an enclave of Adangme speakers in central Togo who have been mentioned by writers such as Christaller (1887, p. 165 and 1933 p. xiv); Rapp (1943); Westermann and Bryan (1952, p.82), and whose presence has been recently attested by Miss Mary Esther Kropp[2]. Puplampu (1953, pp. 22ff.) postulates 1650 as the date of the migration of these Adangme-speaking people to an area in Togo through which the main body of Adangmes had come to Ghana during their migration from a place east of Nigeria. In Togo, this Adangme-speaking community is entirely surrounded by Ewe-speakers but their language has remained distinctly Adangme.

In Ghana, Adangme is linguistically bounded on the east by Ewe, on the north by Akwapim Twi and on the west by Ga. Adangme-land

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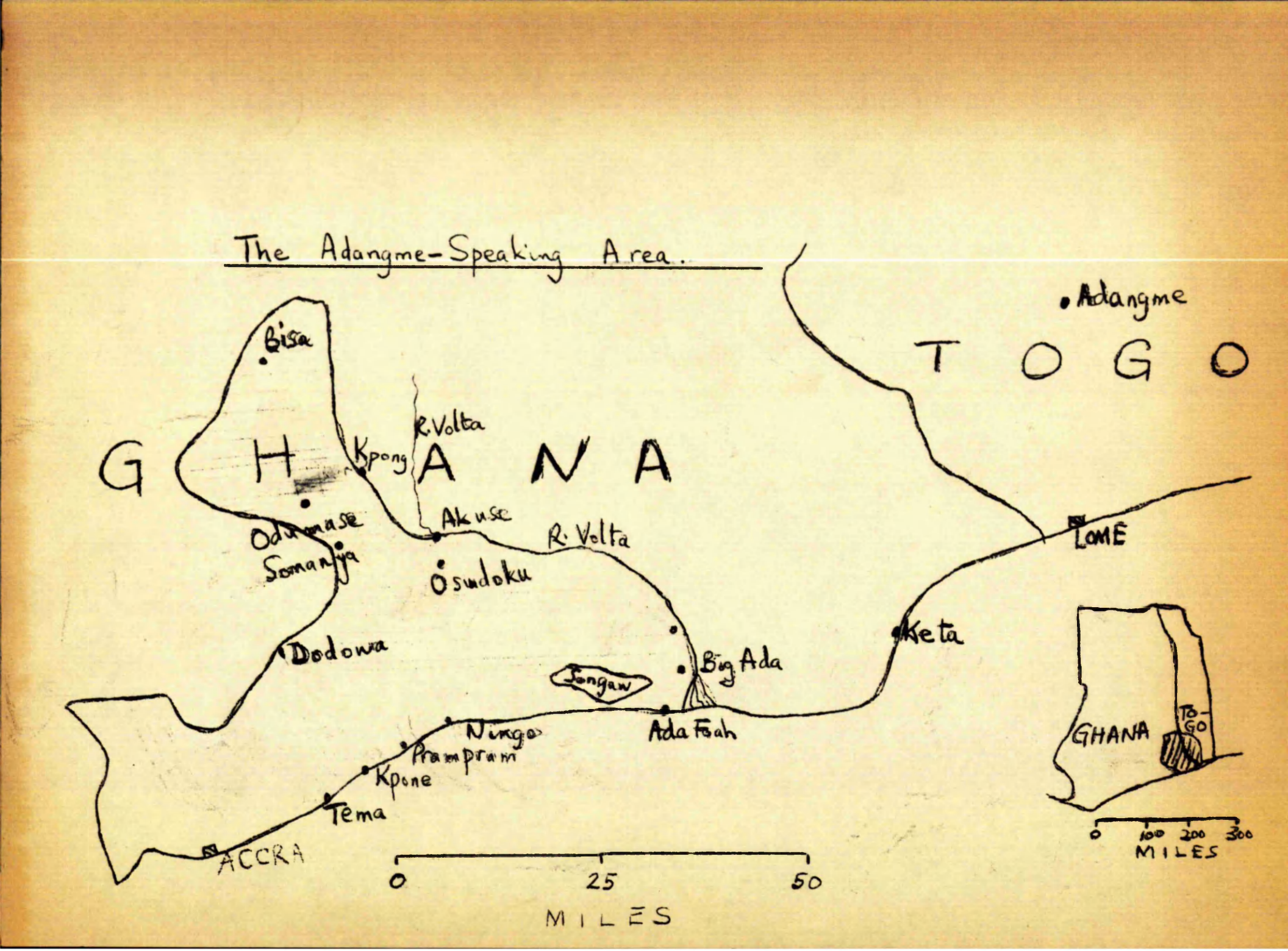
1. Also spelt ADANGBE, DANGBE and DANGME.

2. Personal communication.


The Adangme-Speaking Area.
Adangme
TOGO
Bisa
R. Volta
GHANA
Kpong
Akuse
R. Volta
Odumase
Somanya
Osudoku
LOME
Keta
Dodowa
Big Ada
Songaw
Ada Foah
Ningo
Prampram
Kpone
Tema
ACCRA
0
25
50
MILES
GHANA
TO-GO
0
100
200
300
MILES

covers the seven traditional areas of Kpone, Prampram, Ningo, Ada, Osudoku, Krobo and Shai which were associated with the now-moribund Dangme Cultural Society of the 1940s and 1950s. Considerable confusion has been caused in the past by the lack of a standard label for the area and by the frequency with which administrative designations have been changed. Thus one often hears of "Dangbe-Shai" which is tautologous since Shai is but one of seven Dangme subdivisions; "Ga-Adangbe" which denotes an ethnic cluster comprising the Ga and the Adangme, each with its own language and social organization; "Ga-Dangbe-Shai" which is the ponderous designation of a Local Council Area that covers an area which is partly Ga and partly Adangme.....etc.

Part of the confusion stems from inadequate linguistic information. It is true that Ga and Adangbe are very closely related; but since they are not mutually intelligible they are better considered as two separate languages. This position did not become clear until serious linguistic attention was focused on the area in the early 1940s. About two centuries ago, incoming missionaries settled in Ga-speaking Accra and devised an orthography for Ga. This language became the vehicle for educational and missionary work, and a grammar of Ga was published as early as 1764 by a Danish scholar called Protten.

Then came many hypotheses about the relation of Ga to Adangme. Zimmerman (1858, pp. 385-6) calls Adangme ~~dialect~~ "the mother-dialect of Ga" and later mentions "the Adangme dialect of the Ga

Language". One reason he gives for the missionaries' choice of Ga rather than Adangme as the language to be chosen for missionary work and to be written was "the moral and political supremacy of the proper Ga tribe over the Adangme as well as the other tribes around" — an interesting reason, but one that need not detain us. Zimmerman's view that Ga and Adangme were one language seems to have been adopted by Westermann (1927, p.4; also Westermann and Bryan, 1952, p. 82), by Christaller (1933, p. xiv) and by Ward (1945, pp. 65ff). Ward felt that "Ga and Adangme are fairly closely related dialects of one language" but, significantly, she suggested that they were different enough to warrant the production of separate linguistic materials for an impending literacy campaign.

As soon as the deficiency in the amount of linguistic information on Adangme was remedied by the work of Professor Jack Berry and others (e.g. Rapp, 1943, p. 8), it became clear that Ga and Adangme were separate languages. Berry says as much (1950, p.69; 1952 passim). Although Greenberg did not separate the two in the 1955 edition of Studies in African Linguistic Classification, his later work Languages of Africa (1963) lists them as two languages. In Voegelin (1964, pp. 14-15) they are listed as two languages. As mentioned above, Ga and Adangme are not mutually intelligible: most Adangmes understand Ga because it is the only vernacular they learn to read and write at school; and those Gas who have had no extensive commercial or other contact with Adangme-speakers can, at best, only make rough guesses at the meaning of Adangme utterances.

The main occupations of the people living in the Adangme area are farming, fishing, animal husbandry and salt-collection. (Salt-collection is done at the Songaw [sɔ̀ŋɔ̀] lagoon near Ada. The salt is gathered during the dry harmattan season from a flat area bordering the sea, so "salt-mining" would be an inappropriate designation.) Owing to poor employment opportunities in the area and to the aridity of a lot of the land, many coastal Adangmes have ventured outside their home towns to seek employment elsewhere, often in other Adangme-speaking areas to the north but at other times to places such as the Twi-speaking cocoa-farming areas farther north. It is not only farmers that have moved; teachers, traders and other occupational groups have moved too. My father, for instance, hails from Ada (as does my mother too) but has been associated for over thirty years, first as a student and later as a teacher, with a Secondary School that was established at Ewe-speaking Adidome, moved to Ada in 1942 and then finally moved to Dodowa in 1945. I was five when we moved to Dodowa and I went to school there continuously until I was seventeen. I also spent intermittent periods there in the following six years, pending my departure for Britain. My visits to my home town Ada have, on the whole, been short and infrequent.

Dodowa is a small town bisected by a small seasonal stream bearing the same name and east of which live Adangme-speaking (Shai dialect) and Hausa-speaking communities. To the west of the stream are to be found a heterogeneous mixture of Yoruba-, Ga-, Ewe-, Twi- and

Adangme-speaking communities. The indigenous Shai people are almost entirely confined to the eastern side of the stream. My family lived in a house owned by an Ada family that had settled at Dodowa some years previously; among our co-tenants were a Yoruba family. We children mixed a lot, but my father was at pains to ensure that we did not lose our Ada accent. Thus, although I have spent only a few short holidays at Ada itself, my speech maintains more features of the Ada dialect than of the Shai or any other dialect of Adangme. It is with the Ada dialect that this thesis is primarily concerned.

The latest Census figures[3] indicate that there are about 290,000 Adangmes, including 50,000 Adas. The figure for Gas is 236,000. The Adangme total is almost certainly a conservative estimate, since both Zimmermann[4] and Ward (1945, p.65) agree that Adangmes outnumber Gas by far and since it is known that enumeration in rural areas such as Adangme-land is far less thorough than it is in urban centres such as Accra where most Gas live. It is very doubtful if there has been enough migration from Adangme areas to reduce the pre-1945 ratio[5] of about 4 Adangmes to 1 Ga to the overall margin represented by the present figures. A classic example

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3. Ghana Govt. (1960), p. xxii.

4. Zimmermann (1858, p.385): "Adangme is spoken by a far more numerous nation than the Ga."

5. Ward, ibid, quotes the pre-1945 figures as 90,000 Adangmes as against 20,000 Gas.

of the imprecision of the rural count is given by Puplampu (1953, p.8.) who rejects the 1948 Census total of 250,000 Adangmes and suggests a figure of 500,000 for that year.

1.2. Previous Studies of Adangme

Zimmerman's[6] is the earliest extant analysis of Adangme that I have seen. Along with his brief, traditionally-oriented analysis go a few texts of Adangme from which he extracts various grammatical constructions for translation and for comparison with Ga. He uses the Ga script of those days which was characterized by the presence of many diacritics.

The second analysis of Adangme must have been a work of Puplampu's (1945?) which Ward (1945) said was ready for printing at the time. I cannot trace it, but it appears to have been the precursor of his later two-part Dangbe Manner of Speech which was published in 1953. The latter work is cast in the form of a classroom discussion in which a teacher tells his class the history of the Adangme people, teaches them some Adangme phonetics, and tells them something about the type of orthography that he would recommend for the language. Part 3 of this work is referred to on page 93 of Part 2 but it does not appear to have been published. The MS. of Part 3 is in the care of Professor Berry; it was not possible to consult it during

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6. op.cit., pp. 385ff, 415ff.

the course of the present study.

Puplampu is to be commended for the energy and assiduity he brought to his subject: he once took a frequency count at three markets so as to determine which speech sounds he should introduce first in his infants' text books. The pedagogical grounds for this approach are quite shaky[7], but that is not the point at issue here. In the face of heavy odds and despite the jealous opposition of many Adangmes, he took pains to analyse Adangme speech as rigorously as he could, and sought all along — apparently without realizing the limitations of such an approach — to strike a balance between the different Adangme dialects so as to facilitate the acceptance of his orthography and of his text-books.

This attempt at compromise at all costs often led him to recommend as norms utterances that were quite artificial, in that they were not the natural speech of speakers of any one of the seven dialects; examples of these abound in his school text-books. He also, unfortunately, sought to perpetuate obsolescent forms of the language for the purpose of developing Standard Adangme, of creating one speech community and of smothering dialectal differences (Puplampu, 1953, p. 63). In this attempt, predictably, he failed. But the

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7. See O.C. Irwin (1957), from which it would appear that a better approach would be to grade the sounds by place of articulation rather than by the frequency of their occurrence in adult speech.

problem of the lack of any locally-recognized standard or Central dialect is bound to arise again if and when an attempt is made to produce text books for the area and to make Adangme the medium of instruction in the early stages of elementary school education. Indeed, a translation of the Bible into Adangme on which work is reported to have started under the direction of Professor Rapp is almost certainly going to be bedevilled by this problem.

Puplampu's awareness of the need for tolerance in the application of his orthography (1953, pp. 35, 37) is often forgotten when he comes to lay down rules for spelling. For instance he recommends (p.38) the omission of consonants that tend to be dropped in speech but in the same breath opposes the omission of vowels that are similarly dropped because "the language gains from our replacing the omitted vowels". He often indulges too in an antiquarianism that runs counter to the spirit of modern linguistics. Of the Osudoku dialect, he says (1953, p.26.) that it"is the purest form, comparatively speaking. Because of its position, it has been protected from the corrupting (my italics) influences of Ga, Twi, Ewe....." This is a patent value judgment which, as such, is of little use to serious linguistic discussions. In addition, he often invokes etymology to condemn forms that are, in fact, current in contemporary speech (1953, pp. 50-51).

Puplampu's analysis is, on the whole, quite valuable and is certainly the most detailed ever to have been published. Since he also spoke the Ada dialect, any differences in viewpoint that are

considered worth referring to will be noted in the relevant sections of the thesis. He died about ten years ago.

Professor Ida Ward devoted some attention to Adangme and worked with Puplampu when the latter was at this School[8] in the 1940s. She published a schematic tonal analysis of two Adangme verbs in a paper on Tonal Analysis of West African Languages[9].

Another investigator with whom Puplampu worked and whom he calls his "tutor, friend and constant companion" (Puplampu, 1953, p.iii.) is Professor Jack Berry. The latter's quite extensive study of Adangme and of Ga first appeared in print when he contributed an outline of Ga and Adangme structure to Manoukian (1950 p.69.) Next, his Ph.D. Thesis (Berry, 1952), contained a brief analysis of Adangme alongside analyses of other Volta River Languages. He has since published a paper on Krobo phonetics (Berry, 1957) in which he deals with the question of stress in Adangme, and also a paper on Ada Personal Nomenclature (Berry, 1960). A projected dictionary which Professor Berry once mentioned does not appear to have been published yet (see Berry, 1958, p. 761.).

A contribution to Adangme scholarship came from Miss Mary Esther Kropp's 1964 paper on "The Morphology of the Adangme Verb Complex". Unfortunately, she drew on both the Krobo and the Ada dialects for

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8. The School of Oriental and African Studies, London University.

9. See Ward (1949), p. 59.

the study and thereby exposed hereself at many points to the danger of assuming more homogeneity in the linguistic material than is the case. The fact that one of her informants spoke Adangme with an Ewe accent was an additional complication. Below is an illustration of the confusion that arose due to these factors.

In dealing with negative morphemes in A.1.22., she says there are two, namely {-í} and {we} . This is true enough, but they are distributed in distinctly different ways in the two dialects.

cf. Ada

/du/ /dúí/ (bathe)

but Krobo

/du/ /dú we/ (bathe).

Furthermore, her silence on the matter of the phonetic alternants of {-í} is likely to make a transformation such as:

/dù-ɔ̀/ /dú-ɛ́/ (sharpen)

unintelligible to a non-Adangme reader. On the distribution of {we} , she says that it occurs after dissyllabic and after mid tone monosyllabic verbs. The former statement is true of neither Krobo nor Ada, cf.

/hàwɔ̀/ /hɛ́wúí/ (worry), in both dialects;

and the latter statement is only partially true of Krobo, for instance:

/su/ /sú we/ (kindle)

/je/ /jí/ (eat)

for which the corresponding Ada forms are

/su/ /sûí/

and /je/ /jí/

An adequate account of these features is possible only when one treats each dialect as a separate homogeneous whole and when one pays attention to tonal variations in the word classes of each dailect. Despite a few more instances of similar shortcomings, Miss Kropp's paper brought to light for the first time many structural features of Adangme that had apparently not been investigated before.

The last scholar of Adangme to be mentioned in this review is Professor Eugene Rapp. Of two papers he published in Berlin in 1942 and 1943 (see Bibliography), the first is a collection of Adangme proverbs with translations and comments in German, and the second is a summary of the phonetics of the language as spoken in Agotime in Togo followed by an Agotime-German and German-Agotime lexicon. Professor Rapp is reported to be currently directing work in connection with the translation of the Bible into Adangme.

This brief review will have shown how little has been done on Adangme so far, and, by implication, how much remains to be done.

1.3. Scope of the Present Study

This thesis presents a description of the phonetics and phonology of a grammatically-delimited portion of the Ada dialect of Adangme which is designated the Nominal Piece or NP, and is defined in Chapter 2. The statement is therefore at the three linguistic levels of grammar, phonetics and phonology in that order.

The phonetic description draws on kinaesthetic evidence of my articulation of a variety of Adangme utterances, supported by data derived from the study of direct and indirect palatograms; kymograms[10]; spectrograms and tonograms of selected utterances. The instrumental techniques that are used for the provision of these data enable the investigator to make abstractions of various kinds which illuminate aspects of the phonetic description, give it an additional dimension and involve in many cases the application of the methods of natural science to the study of human speech.

A grid for the indirect palatograms is provided in the jacket inside the back cover of the appendix, and a chart for the physiological explanation of the grid is to be found in Firth (1948a, facing p. 860). Besides wide band spectrograms with amplitude displays, narrow band integrated sections are also provided for many of the speech sounds described and the advantages of the one

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10. It has been found necessary to show some kymograms more than once in the Appendix, since they are discussed in more than one place in the text. The order in which the kymograms appear in the Appendix follows that of the text as far as possible.

over the other are outlined. The phonetic transcription employs the I.P.A. symbols, with slight modifications; these are indicated in the relevant sections of the thesis.

Since there is at the moment no standard orthography for Adangme, the linguistic material has been presented in the form of phonetic transcriptions and phonological formulae only. The tone marks used — the acute accent [́] for high tone, the grave accent [̀] for low tone and no tone mark for mid tone — are of linguistic significance for the tonal sub-classification of word-classes. Native speakers of Adangme would require far fewer tone marks than are provided; but since the majority of readers of this thesis are likely to be non-Adangmes, it has been thought best to indicate tones in all cases.

The phonological analysis employs the technique of prosodic analysis initiated by Professor J.R. Firth and developed by his students and colleagues in the School of Oriental and African Studies. This is a polysystemic rather than monosystemic approach to phonology, and it is discussed at some length in Chapter 5.

The linguistic material is largely of my own construction and is derived from transcriptions of folk tales told and recorded by me, from spontaneous utterances I have caught myself using in conversations with other Adangme speakers and from citations made, for example, for names of objects in the course of the collection of lexical items for a projected dictionary. Care was taken in all cases to ensure the authenticity of the utterances, and most of them

have from time to time been tested on other speakers of the Ada dialect of Adangme for their reactions.

For the grammatical analysis which is presented in Chapter 2, a large number of Adangme NP constructions were collected, as well from spontaneous utterances I have heard Adangmes use as from the few Adangme pamphlets (mostly written by R.P. Djabanor, see Bibliography) available during the preparation of the thesis. These gave me access to a great variety of Adangme utterances of dissimilar syntactic complexity; it is therefore hoped that that chapter covers virtually all major and minor syntactic types of Nominal Piece.

A matter of major concern to the author, but one that strictly lies outside the scope of this thesis, is the devising of an adequate orthography for Adangme. In the past, each of the six or so Adangme authors who have published pamphlets or books have used their own modifications of the Ga orthography for their purpose. These took account of only their own particular dialects and therefore had little chance of being accepted by speakers of other dialects. These orthographies were further weakened by a deplorable lack of consistency typified by a free alternation — sometimes on the same page — between, for instance, dzua and dzwa for market. Puplampu was the only Adangme author who had a consistent orthography but none of the other authors employed it, and it has the disadvantage, on the one hand, of proposing too many major departures from the Ga orthography with which all literate Adangmes are familiar (for instance, he uses

c and j for the affricate ts and dz of the Ga orthography) and, on the other hand, of proposing the adoption of obsolete forms wherever there were dialectal variations in, say, lexical items.

The problems involved in this matter of an orthography for a language with many dialects none of which is locally recognized as a Standard are, indeed, vast. It would seem that the most practicable course would be the undertaking of separate studies of each dialect followed by a review of the extent and nature of dialectal variation as a basis for the formulation of a Standard Orthography. The point has often been made (e.g. Ward, 1945, passim), and quite rightly too, that what is essential in an orthography is not so much overall phonetic accuracy as a writing system which will be phonetically interpreted in different ways by speakers of different dialects of one language. What must be equally emphasized is the fact that a detailed knowledge of what variations of pronunciation any projected orthography is to accommodate cannot but help in the adoption of the most suitable orthographic conventions. This thesis will, it is hoped, narrow the gap that must be filled before an adequate orthography can be devised for Adangme as a whole, and is offered as a small contribution to our knowledge in this area of African linguistics.

2. DEFINITION OF THE NOMINAL PIECE

2.1.1. "The Nominal Piece (NP) in Adangme" is an abstraction made at the grammatical level of description[1] to subsume elements of structure that, broadly speaking, function either as independent sentences, or as subjects (and/or objects, in the case of transitive verbs) of verbal pieces (VPs) in Adangme sentences. This means that any stretch of utterance treated as an NP in the thesis plays one of the three syntactic roles mentioned above. This is a common characteristic of all Adangme NPs and it is this factor that, above all, justifies the co-identification as NPs of structures that evince a wide range of variation in the complexity of their internal structures. These common syntactic functions are collectively central to the analysis presented in the thesis and it cannot be overemphasized that the unity of the NP depends on them.

The Sentence is taken as the largest unit — largest, that is, not necessarily in terms of the time it takes to utter it, but with regard to its constituent structure — within the framework of which this grammatical abstraction is made. It is believed that this framework is adequate for a statement of the internal structure of the Adangme NP and, where desired, of the external relations of the NP with the VP. A detailed discussion of the structure of the

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1. Firth (1957), p. 7.

Adangme Sentence is, however, outside the scope of this thesis. As a point of departure, it will be sufficient to list some of the major sentence types of Adangme and to discuss the role of NPs in them. Examples will be numbered only in this chapter.

2.1.2. Some Adangme Sentence Types.

An Adangme Sentence may consist of:

(a) a VP only, as in the commands

1. bá — Come!

2. hó — Go!

of (b) an NP only, as in the exclamation

3. kòfí — Kofi!

or in the answer (Sentence 5) to the question:

4. mǐnǐ̀ pɛ̀ píɔ̀ ɔ ?

(what - sounded - just now?)

What made that noise?

Answer: 5. ɔ̀kpɔ̀ ɔ — The dove

or (c) a VP and an NP, as in the commands

6. jé nǐ̀ ɜ — Finish your meal!

(eat - food - the)

7. bá we ɔ mǐ̀ — Come indoors!

(come - house - the - in)

or (d) an NP and a VP as in the statement

8. ɔ̀kpɔ̀ ɔ ba — The dove has come.

or (e) an NP and a VP and an NP, as in the statements

9. ì nǎ ɔ̀kpɔ̀ ɔ. I saw the dove.

10. dejalɔ ɔ gbɛ̀ dʒàtá. The hunter has killed a lion.

(hunter - the - killed - lion)

In all sentence types save the first two, the NP as subject is distinguished from the NP as object as well by grammatical order (the former always precedes the VP whilst the latter always follows the VP) as by intonational patterns peculiar to their respective structural positions.

Only the first sentence type falls entirely outside the scope of this thesis; the various NPs in the other sentence types fall within the purview of our subject and will be discussed below: an outline will first be given of the NP in its status as Sentence (2.1.31.), as Object (2.1.32.) and as Subject (2.1.33.), followed by a detailed discussion of NPs having structures of varying internal complexity (2.2. and 2.3.).

2.1.31. Nominal Sentence

A sentence that consists of only an NP may be called a Nominal Sentence. A comparison of Tgm 18 for the Nominal Sentence

5. ɔ̀kpɔ̀ ɔ The dove

with Tgms 23 to 25 for the following NP-plus-VP sentences

11. ɔ̀kpɔ̀ ɔ lá (Tgm 23) The dove cooed.

8. ɔ̀kpɔ̀ ɔ ba (Tgm 24) The dove has come.

12. ɔ̀kpɔ̀ ɔ dʒɛ̀ (Tgm 25) The dove has left.

shows that a Nominal Sentence has as an essential part of its structure an intonational pattern peculiar to its status as an independent sentence that is bounded on both sides by silence.

In internal structure, a nominal sentence may consist of any of the following:

(a) one word, as in Sentence 3, [kɔ̀fí]. Such an NP may be called a Nominal Word.

(b) more than one word, but excluding a determinative as in

13. mɔ̀tù flákú. Morning porridge (cf. Tgm 15)

14. nɔ̃mlɔ nãne. Human leg (cf. Tgm 10).

Such an NP may be called a Nominal Group. As is shown in 7.4.2. below, NPs made up a nominal and a determinative (see 2.11. on determinatives) are among the very few NP types that are regularly characterized by specific intonational features. It would seem desirable to take account of this fact in a description of NP structure, hence the establishment of Nominal Groups (above) in contradistinction to

(c) Nominal Phrases which consist of more than one word and include a determinative. Examples are:

5. ɔ̀kpɔ̀ ɔ. The dove (cf. Tgm 18).

15. mɔ̀ nɔ. This town (cf. Tgm 20).

2.1.32. NP as object to a VP.

NPs in this syntactic position exhibit intonations peculiar to that position and, of course, to their internal structure (cf. Nominal Phrases). They may be nominal words, nominal groups or nominal phrases, as exemplified respectively by:

16. bá híɔ — Come here.

17. ì nǎ ɔ̀kpɔ̀ àgbɔ̀ — I saw a big dove.

(I - saw - dove - big)

18. ì nǎ ɔ̀kpɔ̀ ɔ — I saw the dove (cf. Tgm 26).

2.1.33. NP as subject to a VP.

These are again characterized by intonations peculiar to their syntactic position and to their internal structures. They may be nominal words, nominal groups or nominal phrases, as exemplified respectively by:

19. wo ŋɔ̀ ɔ. — Honey is sweet.

20. nǎ àgbɔ̀ bé pìè ɔ mì — There is no big cow in the enclosure.

(big - cow - is not - enclosure - the - in)

21. pɛli nɔ ŋɛ fɛ́ɛ́ — This bird's-wing is beautiful

(bird's wing - this - is - beautiful)

2.1.34. Designated here the Nominal Clause is another kind of NP which is somewhat related in structure to the Nominal Phrase but from which it differs in respects that will become clearer after the

structure of the Simple NP has been described below in 2.3.4.

Syntactically, a Nominal Clause may be one of the following:

(a) An Independent Sentence, as in

22. mɔ̀ àgbɔ̀ nɔ ɔ ? A big fellow like you?

(you(sg.) - big - this ?)

(b) An antecedent to the subject of a VP, as in

23. mɔ̀ àgbɔ̀ nɔ ɔ, o ŋɛ ja fó o.

(you (sg.) - big - this, you (sg.) - are - tears - weep - ing).

You are too big to cry.

where the Nominal Clause is antecedent to [o], the subject of the VP [ŋɛ ja fó o].

(c) An antecedent to the object of a VP, as in

24. mɔ̀ àgbɔ̀ nɔ ɔ, dʒúkúɛ́ ŋáfíí nɔ gbè ɔ̀.

(you (sg.) - big - this, child - tiny - this - beat - you (sg.)).

Big though you are, this tiny child beat you.

where the Nominal Clause is antecedent to [ɔ̀], the object of the verb [gbè].

The internal structure of the Nominal Clause is described in 2.3.5.

2.2.1. TYPES OF NOMINAL PIECE

2.2.11. Introduction.

The examples cited above are representative of the syntactic scatter of NPs but they do not in themselves provide more than an

inkling of the degree of structural complexity to be observed in the internal structures of some NPs. Thus, while for certain purposes it might be sufficient merely to label as Nominal Phrases the two subject NPs of the following sentences:

25. nã̀ túé nɔ klè — This cow's-ear is big.
(cow-ear - this - is big)

26. nã̀ nɔ túé klè — This cow's ear is big.
(cow - this - ear - is big)

important structural features of Adangme would be obscured if one did not go beyond that and account for the different syntactic roles of the determinative [nɔ] in the two NPs. Account needs to be taken too of NPs that are linked by the additive conjunction [kɛ] and or by the alternating conjunctions [àlɔ́ɔ́] and [lɔ́ɔ́] or, as in

27. í ŋɛ gbé kɛ ánɔ̀. — I have a dog and a cat.
(I - have - dog - and - cat)

28. ɔ̀ hé bɔ̀fɔ́ lɔ́ɔ́ jɛ? — Did you buy corn or yams?
(you (sg.) - bought - corn - or yams ?)

To account satisfactorily for the structure of these examples, it will be necessary to abstract a Nominal Head (2.5.) or core of each NP and to abstract NP types by reference to factors such as: how many Nominal Heads each contains? What are the relations of its parts to the whole - i.e. does it contain a conjunction? If it contains more than one Nominal Head, are their relations those of apposition or those of possession? The classification to be arrived at will differ from, but will run more or less parallel

to [2], the one presented above since attention will now be focused less on the syntactic position of the NP in relation to the VP and more on the internal structure of the NP.

. . .

2.2.12. Compound NPs

NPs that contain Nominal Heads that are linked by one of the conjunctions:

kɛ	and
lɛ́ɛ́	or
àlɛ́ɛ́	or

will be called Compound NPs irrespective of their syntactic position in the Sentence. Examples are:

27. ɪ ŋɛ gbé kɛ ánɔ̀. I have a dog and a cat.

28. ɔ hé bɔ̀fó lɛ́ɛ́ jɛ? Did you buy corn or yams?

29. gbéhĭ kɛ ánɔ̀hĭ ba we ɔ mĭ.

(dogs - and-cats - came - house - the - in)

Dogs and cats entered the house.

Where a Compound NP consists of more than two ~~items~~ Nominal Heads, the conjunction precedes all but the first ~~item~~ Nominal Head, as in

29a. ì lɛ̀ gbéhĭ kɛ ánɔ̀hĭ kɛ tɔ̀hĭ kɛ nãhĭ.

(I - bred - dogs - and - cats - and - goats - and - cattle)

I bred dogs, cats, goats and cattle.

It will be necessary therefore to adopt the convention that in Compound NPs, all but the first Simple NP (see 2.2.14.) will have an introductory conjunction.

2, This statement is qualified in 2.3.5. below.

2.2.13. Complex NPs.

NPs that contain more than one Nominal Head but contain no conjunction will be called Complex NPs irrespective of their syntactic position, examples being:

13. mɔ̀tù flákú' Morning porridge

14. nɜ̃mlɔ nãne Human leg

25. nã̀ túé nɔ klɛ̀ This cow's-ear is big.

A sub-division of Complex NPs into those whose Nominal Heads are in appositional relationship and those whose Nominal Heads are in genitival relationship is achieved by a simple test: if the insertion between two such Nominal Heads of the copula [dʒí] or of the verbal phrase [nɛ́ dʒí] who is or which is yields a sentence that might occur in Adangme, the Nominal Heads concerned are in appositional relationship; if not, they are in genitival relationship. Thus, the Nominal Heads in each of the three examples above are all in genitival relationship since none of the following occur in Adangme:

* mɔ̀tù dʒí flákú;
* mɔ̀tù nɛ́ dʒí flákú;
* nɜ̃mlɔ dʒí nãne;
* nɜ̃mlɔ nɛ́ dʒí nãne;
* nã̀ dʒí túé;
* nã̀ nɛ́ dʒí túé.

But in: 30. nɪ̀gónɔ̀ sɪ̀kátʃɛ ɔ. The rich Ningoman

(Ningoman - richman - the)

the two Nominal Heads [nɪ̀gónɔ̀] and [sɪ̀kátʃɛ] are in appositional relationship since

31. nɪ̀gónɔ̀ nɛ́ dʒí sɪ̀kátʃɛ ɔ

The Ningoman who is rich.

is an acceptable Adangme utterance.

The intricacy of the structure of certain Complex NPs is illustrated by

32. èdʒísú mǎnɛ̀ jàá àsàntéwá — Queen Yaa Asantewa of Ejisu

(Ejisu - queen - Yaa - Asantewa)

which contains four Nominal Heads. The first two are collectively in appositional relationship to the last two, since the following is an Adangme Sentence:

33. èdʒísú mǎnɛ̀ nɛ́ dʒí jàá àsàntéwá

(Ejisu - queen - who-is - Yaa - Asantewa)

The Queen of Ejisu who is called Yaa Asantewa.

The first two Nominal Heads are in genitival relationship since, neither *[èdʒísú dʒí mǎnɛ̀] nor *[èdʒísú nɛ́ dʒí mǎnɛ̀] occurs in Adangme.

On the other hand, the last two Nominal Heads [jàá] and [àsàntéwá] are in appositional relationship, since

34. jàá nɛ́ dʒí àsàntéwá — Yaa who is Asantewa

is an Adangme sentence.

The Chinese-box-type structure of Complex NPs is illustrated by the contrast between the Complex NPs of

25. nǎ túé nɔ klɛ̀ — This cow's-ear is big.

and 26. nǎ nɔ túé klɛ̀ — This cow's ear is big.

In the former, the determinative [nɔ] qualifies the joint Nominal Heads [nǎ] and [túé]; in the latter the determinative [nɔ] qualifies only the first Nominal Head [nǎ], so that the Complex NP [nǎ nɔ túé] may be said to be composed of a two-place Simple NP (see 2.3.1. below)

and a one-place Simple NP.

An examination of some other NPs later in the thesis will confirm the viability of considering Complex NPs as being composed of Simple NPs.

2.2.14. Simple NPs.

The third type of NP is the Simple NP which contains only one Nominal Head, with or without its qualifiers. Examples are:

5. ɔ̀kpɔ̀ ɔ. The dove.

6. jé nǐ ɜ. Finish your meal.

19. wo ŋɔ̀ ɔ. Honey is sweet.

21. pɛli nɔ ŋɛ fɛ́ú. This bird's-wing is beautiful.

As stated in 2.2.11. above, the sub-classification of NPs into three types is different from, but runs parallel to [3], the sub-division of NPs on the basis of Sentence-syntax presented i 2.1.31. to 2.1.34. above. Thus of the NPs cited in the above examples of Simple NP structure, the first is a Nominal Sentence and has an intonation appropriate to its status, the second is an NP in object position to the verb [jé], the third is an NP in subject position to the VP [ŋɔ̀ ɔ] and the last is an NP in subject position to the VP [ŋɛ fɛ́ú]. It may also be said that the third is a Nominal Word whilst the other three are Nominal Phrases.

Nominal Head has so far remained an undefined term; a full discussion of the term is provided in 2.5. below hence it will suffice

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3. This statement is qualified in 2.3.5. below.

here to designate it as the core of each NP around which are built qualifiers that are sub-divisible on account of their syntactic properties. These will now be discussed in relation to the structure of the Simple NP.

2.3.1. Structure of the Simple NP

The defining characteristic of a Simple NP as opposed to a Complex or a Compound NP is the fact that it has only one Nominal Head. The latter may or may not be accompanied by various pre-Head or post-Head qualifiers. Thus the NPs in the following sentences are all Simple NPs (the Nominal Heads are underlined):

35. d3ămă d3ôkŭ̀ŭ̀ ɜ̃ That child.

36. wà d3ămă womí tʃutʃu àgbò ɔ. That big red book of ours.
(our - that - book - red - big the)

37. ó kéklé bòfó fútáá tʃòwí ɔmɜ̃ fúú pŭ̀ŭ̀
(your (sg.) - first - corn - white - small (pl.) - the (pl.) - plenty - grew).
Many of those first small white grains of corn of yours have sprouted.

38. ó d3ămă kéklé ɲmɜ̃ ɜ̃ klè. That first farm of yours is big.
(your (sg.) - that - first - farm - the - is big)

As these examples show, a certain grammatical order characterizes both pre-Head and post-Head qualifiers. These two will be discussed in turn.

2.3.2. Pre-Head Qualifiers.

2.3.21. Example 38 illustrates the maximum number of places that has been encountered in pre-Head qualifiers; there are three places which can be conveniently labelled "a", "b" and "c" and which are all optional in Simple NP structure. They are filled as follows:-

2.3.22. POSSESSIVES (3.2.25) alone fill place "a"; they do so only when a noun is Head (place "d") of the Simple NP concerned. Thus sentences 36, 37 and 38 have the following in places "a" and "d":

	a		d	
36.	wà	.....	womí	our ..... book
37.	ó	.....	bɔ̀fó	your ..... corn
38.	ó	.....	ŋmɔ̃	your ..... farm

Another example is:

	a	d	g	
39.	ó	womí	ɔ klɛ̀.	Your book is big.

(your (sg.) - book - the - is big)

2.3.23. Place "b" is filled by one of the following pre-Head qualifiers:

d3ãmã that, those

d3ãmãd3e that kind of, those kinds of

kíkɛ̃mã this, these

kíkɛ̃mãd3e this kind of, these kinds of

The Nominal Heads they colligate with are nouns, adjectives and numerals; they do not colligate with pronouns or with quantifiers when these operate as Head. For examples of [dʒãmã] colligating with nouns as Head see Sentences 35, 36 and 38 above; other examples are:

40. dʒãmãdʒe tʃutʃu ɔmɛ̃ hĩ́ Those kinds of red ones are bad.
(those kinds of - red - the (pl,) - are not good)

where the adjective [tʃutʃu] operates as Head;

41. dʒãmã ɲɔ̃ɲmã́ ãmɛ̃ hìɛ̀ Those ten are sufficient.
(those - ten - the (pl.) - are sufficient)

where the Head is the numeral [ɲɔ̀ɲmã́].

2.3.24. Place "c" is filled by either of the pre-Head ordinal numerals [kéklé] first and [kéklééklé] (the) very first. These are the only pre-Head numerals in Adangme (see 2.10. below), and they colligate with nouns, adjectives and numerals operating as Head, but not with pronouns or quantifiers in that position. [kéklé] appears in an NP with a noun as Head in:

38. ó dʒãmã kéklé ŋmɔ̃ ɔ klɛ̀. That first farm of yours is big.
(your (sg.) - that - first - farm - the - is big)

Other examples are:

42. kéklé fútáá a pɛ̃̀ɛ̃́ The first white one is spoilt.
(first - white - the - is spoilt)

where the adjective [fútáá] is Head;

43. kéklé éwìɛ̀ ɔmɛ̃ bɛ̀. The first four have passed.
(first - four - the (pl.) - have passed)

where the numeral [ɛ́wɔ̀ɛ̀] is Head.

As stated above, these pre-Head qualifiers are optional in Adangme NP structure, hence there may be all three in an NP (cf. Sentence 38), or only two (cf. Sentence 36) or only one (cf. Sentences 39-43) or none (cf. Sentence 5 : [ɔ̀kpɔ̀ ɔ] The dove.)

2.3.3. Post-Head Qualifiers

2.3.31. The post-Head qualifiers, like the pre-Head qualifiers, are all optional elements of Simple NP Structure. Five places may be set up to account for them, namely:

(i) Place "e", filled by Adjectives;

(ii) Place "f", filled by Numerals;

(iii) Place "g", filled by Determinatives;

(iv) Place "h", filled by Quantifiers, and

(v) Place "i", filled by Intensifiers.

As explained in 2.9. below, an NP may contain more than one post-Head adjective, in which case the adjectives follow an order set out in 2.9. Only one structural place "e" has been set up for adjectives, nonetheless.

A simple NP may contain all five post-Head qualifiers, or any four post-Head qualifiers, or any three post-Head qualifiers.....etc. or, of course, none of these five. In NPs in which these post-Head qualifiers appear, they always follow the order in which they have been listed above. Here are illustrations, all having Nouns operating as Heads:

2.3.32. Simple NPs with five Post-Head Qualifiers.

d e f g h i

In 44. i je àkɔ̀dū̀ fūfūī́ ékpà amɛ̌ kúlàá pó

(I - ate -banana - ripe - six - the(pl.) - all - even)

I have even eaten all the six ripe bananas.

the post-Head qualifiers are the adjective [fūfūī́], the numeral [ékpà], the determinative [amɛ̌], the quantifier [kúlàá] and the intensifier [pó].

2.3.33. Simple NPs with four Post-Head Qualifiers

A Simple NP may contain any four of the five post-Head qualifiers, but always in the order described above, a s in:

45. d e f h i
tàdé tʃutʃu ékpà sɔ̃̄ɔ̃́ pó sǎ

(garment - red - - six - plenty - even - burnt)

Even as many as six red garments got burnt.

Here the post-Head qualifiers are the adjective [tʃutʃu], the numeral [ékpà], the quantifier [sɔ̃̄ɔ̃́] and the intensifier [pó].

Another example of a Simple NP with four post-Head qualifiers is:

d e f g h
46. àmɛ́dǎà sǎsɛ̀ɛ̌́ ékpà amɛ̌ kúlàá pūɛ́́.

(plantain - toasted - six - the(pl.) - all - spoilt).

All the six toasted plaintains have gone bad.

where the post-Head qualifiers are the adjective [sǎsɛ̀ɛ̌́], the numeral [ékpà], the determinative [amɛ̌] and the quantifier [kúlàá].

. . .

2.3.34. Simple NPs with three Post-Head Qualifiers.

A Simple NP may contain any three post-Head qualifiers. Here is one example:

46. d e f g
wà gbè nǎ àgbò ékpà amɛ̌.

(we - killed - cow - big - six - the (pl.)).

We have killed the six big cows.

Here the post-Head qualifiers are the adjective [àgbò], the numeral [ékpà] and the determinative [amɛ̌].

. . .

2.3.35. Simple NPs with two Post-Head Qualifiers.

A Simple NP may contain any two post-Head qualifiers, as in the second NP of Sentence 24:

d g
..... dʒúkúɛ̌ ɲǎrîî no .... this tiny child ....

where the post-Head qualifiers are the adjective [ɲǎrîî] and the determinative [no].

. . .

2.3.36. Simple NPs with one Post-Head Qualifier.

Finally, a simple NP may contain any one post-Head qualifier, as in

d g
5. ɔkpɔ̀ ɔ The dove

d g
15. mǎ no This town

d e
17. ì nǎ ɔkpɔ̀ àgbɔ̀ I saw a big dove.

where the respective post-Head qualifiers are the determinatives [ɔ] and [no], and the adjective [àgbò].

2.3.4. Summary of the Structure of the Simple NP.

A Simple NP can, therefore, have anything from one to nine places filled in its structure. Where nine places are filled, the first three are pre-Head qualifiers, the fourth is the Nominal Head (which, in this case, is always a noun, see 2.3.22. above), and the last five are post-Head qualifiers. All places save place "d" for the Nominal Head (2.5.) are optional in Simple NP structure; that is, every Simple NP has one Nominal Head which may or may not be preceded by pre-Head qualifiers and may or may not be followed by post-Head qualifiers. Restrictions that operate in Simple NP structures in which Nouns are not Heads will be more fully discussed in 2.5. below where the classes of words that function as Nominal Heads — i.e. Subject Pronouns, Nouns, Adjectives, Numerals and some Quantifiers — are reviewed.

Examples of various Simple NP structures have been given above, but none has yet appeared in which all nine places are filled. The example which follows fills that gap; while it is hardly conceivable that this utterance could initiate a conversation, it is a sentence that could quite easily occur in the middle of one.

a b c d e f g h i

47. mã́ hé ó dʒãmã́ kéklé ɲɔ̃ ànbɔ̀ étɛ̃ ɔ̃mɛ̃ kúlàá pó.

(I shall - buy - your(sg.) - those - first - farm - big - three - the(pl.) - all - even).

I should even like to buy all those first three big farms of yours.

The operation of the category of number in all three types of NP (Simple, Complex and Compound) is discussed in 3.3. below.

2.3.5. Structure of the Nominal Clause.

The Nominal Clause was treated in 2.1.34. above as an NP that occurs either as a Sentence or as the preliminary part of a sentence to whose subject or object it is an antecedent. It is, strictly speaking, different from all other NPs and stands outside the tripartite division of NPs into Simple, Complex and Compound. This calls for a qualification of statements made in 2.2.11. and 2.2.14. above to the effect that the tripartite division of NPs parallels the earlier one based primarily on the Syntax of the Sentence: the latter includes Nominal Clauses, whilst the former does not.

The fact of the Nominal Clause being discussed alongside other NPs at all was prompted by the partial resemblance between its internal structure and that of the Nominal Phrase (2.1.31.): one crucial difference between the two is that Nominal Phrases have a maximum of five post-Head qualifiers (cf. Structure of the Simple NP, 2.3.4.) whilst nominal clauses have a sixth whose status remains ambiguous, for reasons that will be explained presently.

It will be agreed that in the terminology proposed above, the following contain Simple NPs:

5. ɔ̀kpɔ̀ ɔ (d g) — The dove

15. mɑ̌ nɔ (d g) — This town

44. i je àkɔ̀dɑ́ fúfúí ékpà amɛ̌ kúlɑ́ɑ́ pó (d e f g h i)

(I - ate - banana - ripe - six - the(pl.) - all - even)

I have even eaten all the six ripe bananas.

In connection with the last example, it will be recalled that the determinative is the third of five post-Head qualifiers (see 2.3.31.). When one considers the Nominal Clause

22. mɔ̀ àgbɔ̀ nɔ ɔ? A big fellow like you?

however, it becomes clear that there is a sixth post-Head element of structure. This it is that sets Nominal Clauses apart from other NPs; it is similar in phonetic form to the singular definite article (see 2.11.) and always comes last in Nominal Clause Structure, as in:

d e h i
48. nĭgóli ɔmɛ̆ ŋɔ́ pó ɔ, à jà a wɔ̀.

(Ningomen - the(pl.) - plenty - even, they - go - do - sea)

As for many of the Ningo people I mentioned, they go to sea.

d e
49. gbé àgbɔ̀hĭ ɜ̆, a he ŋɛ gbéjɛ̀.

(dog - big(pl.), they - selves - have - fear)

As for big dogs, they are fearful.

Although the labelling of places in the Nominal Clauses above may not be justified, it serves to point out the sixth post-Head element. Intonationally, the Nominal Clause is always marked by a pre-pausal final low tone and a fairly sustained articulation of the final vowel, as is shown on Tgm 27 for [mɔ̀ àgbɔ̀ nɔ ɔ]. These intonational features are furthermore reminiscent of those found in certain introductory adverbial phrases, e.g.

49a. mɜ̆nɔ̀ ɔ, i ba. Today, I have come.

49b. hɔ̀gbɛ̀ a, í bɛ́. On Sunday, I did not come.

The structure of the Nominal Clause requires further investigation before its relation to other NPs can be adequately explained.

2.4.1. Nouns distinguished from Other Nominal Heads.

As a prelude to the review of Nominal Heads in 2.5., this section summarizes the features that distinguish Nouns from other types of Nominal Head, namely Pronouns (2.4.2.), Adjectives (2.4.3.), Numerals (2.4.4.) and Quantifiers (2.4.5.)

2.4.2. "Noun" distinguished from "Pronoun":

2.4.21. Unlike pronouns, nouns can colligate independently with the following to form simple NPs that are not syntactically BOUND (see below):

(a) with determinatives, viz.

5. ɔ̀kpɔ̀ ɔ The dove

15. mǎ nɔ This town;

(b) with intensifiers, viz.

49. kɔ̀fí pɔ́ dʒè. Even Kofi has left.

(c) with adjectives, viz.

17. ɪ̀ nǎ ɔ̀kpɔ̀ àgbɔ̀. I saw a big dove.

Besides, nouns are an open word-class, and most nouns are inflected for number (3.3.).

2.4.22. Unlike nouns, Pronouns are a closed set to which a three-term category of person applies (3.2.).

Pronouns do not colligate independently with determinatives without an intervening adjective

Thus * [mɔ̀ nɔ] does not occur in Adangme, but

50. mɔ̀ nɛ̀ɛ̀fí nɔ dʒí tojɛlɔ ɔʔ
(you(sg.) - little - this - is - shepherd - the)

How can a little fellow like you be the shepherd? does.

Such NPs can be in subject position only to the copula [dʒí] but not to any other verb. They occur, of course, (and always with intonations appropriate to their syntactic position) as objects to transitive verbs, as in

51. ì nǎ mɔ̀ nɛ̀ɛ̀fí nɔ
(I - saw - you(sg.) - little - this)

Small though you are, I saw you.

Subject NPs that colligate with only the copula [dʒí] may be termed (syntactically) BOUND NPs in contradistinction to (syntactically) FREE NPs that are not so restricted. In these terms, two-word NPs that comprise a pronoun and an intensifier are also BOUND NPs, as in

52. mɔ̀ pó dʒí mǎtʃɛ ɔ nɛ́
(you(sg.) - even - are - chief - the - in fact)

Though you may not realize it, you are the chief.

53. i le mɔ̀ pó I know even you.

However a sentence like *[mɔ̀ pó dʒɛ̀] does not occur in Adangme; [dʒɛ̀] means to leave.

Also bound are NPs comprising subject pronouns of Series One (3.2.22.), as in

18. ì nǎ ɔ̀kpɔ̀ ɔ. I saw the dove.

53. ì le mɔ̀ pó. I know even you.

The following are, therefore, the NPs that are bound:

(i) an NP of structure "d", filled by a Pronoun of Series One (3.2.22.)

(ii) an NP of structure "d, e, g", "d" being a Pronoun of Series Two (3.2.23.);

(iii) an NP of structure "d, i", "d" being a Pronoun of Series Two (3.2.23).

. . .

2.4.3. "Noun" distinguished from "Adjective".

. . .

2.4.31. While Nouns and Adjectives can be Heads of Simple NPs, for example the noun [ɔ̀kpɔ̀] is Head in

d g
5. ɔ̀kpɔ̀ ɔ́ The dove

and the adjective [àgbɔ̀] is Head in

d g
54. àgbɔ̀ ɔ́ lɔ̀á The big one is lost,

a noun can be the Head of a Simple NP that contains an adjective, as in

d e
17. ì nā̀ ɔ̀kpɔ̀ àgbɔ̀ I saw a big dove.

but an adjective cannot be the Head of a Simple NP that contains a noun. Thus:

d g d
55. nā̀rī́ ɔ́ túé ka The ear of the tiny one is long.

(tiny - the - ear - is long)

d g d
and 56. àgbɔ̀ ɔ́ nā̀ne ka The leg of the big one is long.

(big - the - leg - is long)

are Complex NPs each containing two Heads ([nā̀rī́] and [túé] in 55, and [àgbɔ̀] and [nā̀ne] in 56) in genitival relationship, since utterances such as

*ɲáŕíí dʒí túé

and * àgbò dʒí nãne

do not occur in Adangme. It is to be noted that NPs of which adjectives are Heads always refer to something (felt, heard, seen, etc.) earlier in the extended linguistic context.

It would be entirely wrong to say of an adjective that operates as the Head of a Simple NP that it "has become a noun" or that it "functions as a noun", for (as explained in 2.5. below) on the fact of its remaining an adjective in all environments depend the other word classes that may appear in the same Simple NP with it. (In Sentences 55 and 56, the only other places filled in the Simple NPs having the adjectives [ɲáŕíí] and [àgbò] as their Heads are place "g" for the determinatives). The place-ordering that is basic to the structure of the Simple NP has this as one of its major consequences.

2.4.32. A noun can be the Head of an NP containing a Possessive, but an adjective cannot, as in

	a	d	g	
39.	ó	womí	ɔ klè	Your book is big.

(your (sg.) - book - the - is big)

Utterances such as the following do not occur in Adangme:

	a	d	g
*	ó	tʃutʃu	ɔ klè

	a	d	g
*	ó	àgbò	ɔ klè

[tʃutʃu] and [àgbò] being adjectives meaning red and big respectively.

2.4.33. Unlike nouns, adjectives are commonly reduplicated for emphasis in Adangme, as in

57. tàdé fútáá — White dress.

(dress - white)

58. tàdé fútá-fútá — Very white dress.

59. tàdé fútáhĭ — White dresses

60. tàdé fútá-fútáhĭ — Very white dresses

Finally, it is worth mentioning that NPs having adjectives as their Head are unlike those having Nouns or Pronouns as their Head in never having human referents.

2.4.4. "Noun" distinguished from "Numeral".

A noun can be the Head of a simple NP that contains a numeral,

45. tàdé tʃutʃu ékpà sɔ́ɔ́ pó sǎ's Head in:

45. tàdé tʃutʃu ékpà sɔ́ɔ́ pó sǎ

Even as many as six red garments got burnt.

But a numeral cannot be Head of a Simple NP that contains a Noun; the following utterance does not occur in Adangme:

* ékpà tàdé.

Unlike nouns, numerals exhibit a three-term morphological system of Cardinal, Ordinal and Distributive (see 2.10. below) examples being:

káke	one	kéklé	first	kákáákáá	in ones
ɛ́ɲɔ̀	two	ɛ́ɲɔ̀né	second	ɛ́ɲɔ́ɔ́ɲɔ̀	in pairs

2.4.5. "Noun" distinguished from "Quantifier".

A noun may be the Head of a Simple NP containing a quantifier, as in:

61. nĭmli fúú ba — Many people came

(people - many - came)

but a quantifier cannot be the Head of a Simple NP containing a noun, ~~viz~~. cf.

* fúú nĭmli ba

Whilst nouns are an open word-class any member of which may function as the Head of an NP, quantifiers (2.12.) are a closed word-class some of whose members do not function as Heads of NPs.

Most nouns are inflected for number (3.3.) but no quantifier is so inflected.

2.5. NOMINAL HEADS

2.5.1. As was stated in 2.3.4. above, the Nominal Head (at place "d") is the only obligatory element of Simple NP structure; the pre-Head qualifiers and the post-Head qualifiers are all optional elements of structure. The word classes that function as Nominal Head are:

Subject pronouns (3.2.),
Nouns (2.7.),
Adjectives (2.9.),
Numerals (2.10.), and
Quantifiers (2.12.).

The restrictions that operate in NPs not having a Noun as Head will serve to underline the fact that place-ordering is crucial in Simple NP structure: it is the justification for assigning a maximum of nine places "a" to "i" to Simple NP structures, and for saying that only place "d" is obligatory.

When place "d" is not filled by a Noun, it may be filled by a Subject Pronoun, or an Adjective or a Numeral or a Quantifier, with that order of priority as Head. (Note that a Simple NP may comprise combinations of these classes of words as well, and see restrictions below.)

. . .

2.5.2. Nouns as Head.

A Simple NP with a noun as Head may contain all or any of the pre-Head or post-Head qualifiers, as in the example given in 2.3.4. above with all nine places filled:

a b c d e f g h i

47. mɑ́ hé ó dɔ̃ãmɑ̃ kéklé ɲɔ̀ ɔ̀gbɔ̀ étɛ̃ ɔ̃ɔ̃ɛ̃ kúlɑ́ɑ́ pó

(I shall - buy - your(sg.) - those - first - farm - big - three - the(pl.) - all - even)

I should even like to buy all those first three big farms of yours.

Such NPs are not syntactically bound; they and those having Pronouns as Heads are the only NPs that may have human referents.

. . .

2.5.3. Pronouns as Head

. . .

2.5.31. When the Head of a Simple NP is a Subject Pronoun of

Series One (3.2.22.), no other places can be filled, as in:

53. i le mɔ̀ pɔ́. I know even you.

Such NPs are always Nominal Words (i.e. one-word NPs) and they colligate only with non-copula verbs.

2.5.32. When the Head of a Simple NP is a Subject Pronoun of Series 2 (3.2.23.), the NP is syntactically bound (cf. 2.4.22. above) irrespective of whether qualifiers are present or not, cf.

52. d i
mɔ̀ pɔ́ dʒí mãtʃɛ ɔ nɛ́

Though you may not realize it, you are the chief.

62. d
mɔ̀ dʒí mãtʃɛ ɔ nɛ́ You are the chief.

Utterances such as the following do not occur in Adangme ([le] means to know):

* d i
mɔ̀ pɔ́ le mãtʃɛ ɔ

* d
mɔ̀ le mãtʃɛ ɔ

2.5.4. Adjectives as Head

When an adjective is the Head of a Simple NP, the only word-classes that may NOT occur in the same Simple NP are Nouns (2.4.31.) and Possessives (2.4.32.). Any or all of the other relevant word-classes may be represented in the NP, as in

63. ɪ sʊ̀ʊ̀ dʒãmã àgbɔ̀ ɔ I like that big one.

54. àgbɔ̀ ɔ làá The big one is lost.

64. nãrɪ́ɪ́ káke nɔ pɔ́ hìè Even this little one would be enough.
(little - one - this - even - is enough)

NPs having adjectives as their Head never have human referents.

. . .

2.5.5. Numerals as Head.

When a numeral functions as the Head of a Simple NP, the only other elements of structure that may form part of the same Simple NP are the pre-Head qualifiers and those post-Head qualifiers that occur after the numeral, namely determinatives (place "g"), quantifiers (place "h") and intensifiers (place "i") as in:

41. d3ãmã̀ ŋ̀ɔ̀ŋmá ámɛ̌ hìà — Those ten are enough.
(b d g)

65. ŋ̀ɔ̀ŋmá sɔ̃̀ɔ̃́ pó làá — Even as many as ten got lost.
(d h i)
(ten - many - even - got lost)

NPs having Numerals as their Head never have human referents.

. . .

2.5.6. Quantifiers as Head.

Of the quantifiers listed in 2.12. below, only [ŋ̀ã́ke] alone, [tɔ́] plenty of and [sɔ̃̀ɔ̃́] many, appear never to function as Heads of any NP. When any of the others functions as Head of a Simple NP, the only other word class whose members may appear in the same Simple NP is that of Intensifiers - i.e. the only (post-Head) word-class that follows quantifiers in the composition of the Simple NP as described in 2.3.4. This is another manifestation of the importance of place-ordering in the structure of the NP.

Examples of quantifiers operating as Heads of Simple NPs are

66. bàbàóó nɔ́ sɛ mĩ̀ — Even a lot got in.
(a lot - even - got - in)

67. sãĩ́ hṹ ba — Quite a few came too.
(a few - also - came)

Utterances such as:

* sɔ̃̀ɔ̃ hṹ ba and
* tɔ́ hṹ ba

do not occur in Adangme.

NPs having quantifiers as their Heads never have human referents.

2.6. QUALIFIERS

The term "Qualifiers" subsumes those word classes that function, in NPs having nouns as their Head, in pre-Head places "a" to "c" and in post-Head places "e" to "i". The word-classes concerned are

Adjectives

Numerals

Determinatives

Quantifiers

Intensifiers.

Of these, the first three are inflected for number and the last two are not. The ways in which these five word classes function in NPs have been outlined above and will be discussed in greater

detail in subsequent parts of the thesis.

Reference will be made to these qualifiers collectively in the discussion of the Category of Number in 3.3. below.

2.7. TYPES OF NOUN

2.7.1. There are two major morphological types of noun in Adangme, namely synchronically non-derived nouns and synchronically derived nouns. These are to be distinguished from the three classes of noun established in 3.3. below in connection with inflection for number, and will be discussed in turn.

2.7.2. NON-DERIVED NOUNS.

Only Personal Names (2.7.21. to 2.7.27.) and Place Names (2.7.28.) will be discussed in this chapter; the discussion of other non-derived nouns is presented in 3.3.27. below.

Personal Names are sub-divisible as follows:

1. Christian Names;
2. Family Names;
3. Day Names;
4. Order-of-Birth Names;
5. Twins' Names;
6. Nicknames, and
7. GBEBA Names.

2.7.21. CHRISTIAN NAMES

Christian Names are strictly loaned names that are given to children generally at the time when they are "outdoored" (one week after birth) or when they are baptised. (Many people who have never been christened also use Christian Names.) Names such as Eric, John, Mary and Elizabeth are therefore quite common among Adangmes.

For nationalistic and other reasons, some people discard their Christian names and use instead their Day Names or Order-of-Birth Names.

2.7.22. FAMILY NAMES

Family Names (or Surnames) are common among Adangmes. Unlike Akans among whom brothers and/or sisters rarely share one Surname, Adangmes usually adopt their father's or grandfather's name and this serves as a family bond. Many family names are indeed derived[4] but these derivations are mostly diachronic ones composed of elements that are no longer productive. Even where it is possible to identify in family names elements that are of foreign (usually Akan or Ewe) origin, these have been so thoroughly absorbed into the Adangme phonological system that it is proposed, for present

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4. See Berry (1960).

purposes, to regard them as synchronically non-derived names.

The author's surname Apronti is diachronically derived from the following elements:

à - plɔ̀ - mɪ̀ - tɪ̀

which together constitute a proverb meaning: "Peeling off a little bit of a person's skin cannot by any means yield any evidence about his character". In other words, "character is more than skin deep". These elements and their syntactic structuring are all obsolete and are no longer productive of similar derivations.

Furthermore, it is worth observing that many Adangme names now have Europeanized (or, more strictly, Anglicized) spellings; that is why the more regular Adangme [-pl-] cluster is replaced by orthographic -pr- above. This name is still pronounced [àplɔ̀tɪ̀] by monolingual Adangmes.

Some Adangme Family Names are homophonous with Male Day Names or Male Order-of-Birth names. The explanation for this is that Family Names are institutionalized conventions and are nowadays subject to change by mere advertisement in the Press. It is conceivable that a father whose day or order-of-birth name is "A" and whose father's family name is "B" could assign to his children the family name "A" instead of "B". The result of this would be that there could be first cousins whose fathers are brothers but yet who bear different Family Names.

Many Family Names are of European Origin and date back to the first contacts of the Adangme people with early European traders,

missionaries and administrators in West Africa. Examples are McCarthy, Glover and Jones. Others, such as Caesar, suggest the influence of European culture and history rather than direct contact with anybody bearing such a name.

2.7.23. ADANGME DAY NAMES

Adangmes, like most Ghanaians, can be given Day Names. In practice, Adangmes tend to make less use of their Day Names than do, for instance, Akans. But the names are available in two series, each composed of seven names for the seven days of the week; there is one series for males and a second for females[5]:

Day		Male Day Names.	Female Day Names.
hɔ̀gbà	Sunday	kùàsí	àwísí
mùɛ̀gbí	Monday	kɔ̀dɔ́	àdɔ́
pɛplɛgbi	Tuesday	kùàblɛ̃́	àblɛ̃́
sɔ	Wednesday	kùàkú	àkú
sɔ̀	Thursday	kùàɔ̀	àwɔ́
sɔ̀hà	Friday	kɔ̀fí	àfí
hɔ̀	Saturday	kùámɛ̀	àmɛ̃́

As pointed out above, some people's Family Names are homophonous with Male Day Names, but since Adangmes make little use of Day Names

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5. See Migeod (1911, Vol. II, p. 167) for a similar series for Akans.

instances of people called John Kwesi Kwesi or Joseph Kofi Kofi are rare. (Since the spelling of many Family Names is anglicized, Kwesi and Kofi often appear as Quarshie and Coffie.)

2.7.24. ORDER-OF-BIRTH NAMES

Order-of-Birth Names are the commonest names in use among Adangmes. They vary considerably from area to area and, even within specific towns, from clan to clan. Two series will be cited here: the first is a common set that is used all over Adangmeland, and the second is the set that is used in the author's own clan. For Nicknames that go with the first series, see 2.7.26. below.

First Series.

	Males	Females
First Child	tàtɛ́	dèdé
Second Child	tàtà	kɔ̀kɔ́
Third Child	tàɛ́	mɛ̀ɛ́mle
Fourth Child	nà	mɛ̀kú
Fifth Child	nàtà	lad3ɛ etc.

Second Series: Order-of-Birth Names used in the author's own clan are:

	Males	Females
First child	ɔfɔ̀é or oforí or ɔfɔ̀tʃú	ɔhùí or Oforíwa
Second child	tʃàtʃú	ɔgbɔ̀ɔ́
Third child	tʃrìí	tɔlɔ̀ɔ́
Fourth child	àkɔ́lí	sàá etc.

The close ethnic affinity of this clan to the geographically contiguous Ewe is evinced by the fact that many of these names are used by the latter as well.

The male names given above are, again, used by some people as Family Names. In this case though, it is not uncommon to find names such as James Tete Tete or John Na Na. Owing to the common practice of anglicizing the spelling of family Names, names such as the above would appear as James Tete Tettey and John Na Narh.

Order-of-Birth Names are given to children in the order by sex in which they are born, so that a third child, if she is a woman's first daughter, would be called [dèdé]. And a fourth child, if he is his mother's first son, would be called [tètété]. Where a man has more than one wife, each wife's children are named separately, just as though she were his only wife.

As a typical Adangme household often contains several families within an enclosed compound, it is common to find many children of the same order-of-birth name living together in the same house. To avoid the confusion that can arise when any of these children is being hailed or is being referred to, conventions such as the suffixation of [-ŋua] big or [-bí] small to such names are adopted. Conversely, one or other of the children could be called by its Day or other Name; or the name of the town in which the child was born could be added to its name, yielding names such as Tete Kumasi or Tete Tamale for first sons born respectively in Kumasi and Tamale and living currently in the same house.

Another common practice is to add a Nickname to a child's name (see 2.7.26. and 2.7.36. below).

. . .

2.7.25. TWINS' NAMES

Just as Order-of-Birth Names are given in the order by sex in which the children of one mother are born, so are Twins' names given irrespective of the number of children their mother may have had previously. Twins are named by sex and, in each case, the next child born after them (whether male or female) is called either [táwia] or [dòó]. Here are the names for twins.

	Column 1	Column 2
Two boys:	átè	làwèé
Two girls:	àkúéle	àkùókɔ
A boy and a girl:	àtá (girl)	làwèé
	làwèé (boy)	àtá

It is believed that the younger of two twins is born first (on the analogy of children preceding adults for purposes of supervision when people are going to previously unknown places), hence the second of the two is regarded as the elder twin and is given the appropriate Column 1 name. Column 2 names are therefore given to whichever twin is born first.

. . .

2.7.26. NICKNAMES

Nicknames are common among Adangmes. Among adults, they are

given for qualities such as bravery, cunning and duplicity, etc. Most of such nicknames are synchronically derived and will be dealt with in 2.7.36. We shall list here only those synchronically non-derived nicknames that go with some of the male order-of-birth names.

Name	Nickname	Inference
tɛ̀tɛ́	bàáɓɛ̀	Fool
tɛ̀tɛ̀	ɔgbètàɛ́	Wolf
tɛ̀ɛ́	pàtàpàɛ́	Rapacious One

The inferences commonly drawn from these nicknames are that the first son tends to be unintelligent and pliable; that the second is given to frightening his elder brother so as not to be unduly cheated by him, and that the third tends to be self-assertive and rapacious vis-à-vis the other two. Needless to say, these inferences are not confirmed by the characters of all persons so named, but there are enough notable instances of rapacity among third Adangme sons to make theirs the commonest nickname.

There are no comparable nicknames for females.

2.7.27. GBEBA NAMES

In the days of high infant mortality, mothers often lost successive babies. This calamity was attributed to evil spirits and it was believed that the most effective way of exorcising such evil spirits was to give unpleasant names to, and to make elaborate facial marks on, such babies. Such names are called GBÓBA

(literally dead and come back) or GBEBA names[6]. Many such names are synchronically derived and are treated in 2.7.37. below. Examples of synchronically non-derived Gbeba names are:

Kɔ̂kɔ́ Dunghill and Kɛ̀ŋà Black ant.

When such names are given to children, they replace Day and Order-of-Birth Names.

2.7.28. PLACE NAMES

Among the few Adangme Place Names that appear to be synchronically non-derived are Àdàǎ, Nɪ̀gɔ́, Sɛ́, Klɔ̀, Dàwà, Òtɔ́kpɔlu, Kpong, Àtúa, Goi and Dodowa. Most of the others are synchronically derived and will be reviewed in 2.7.39. below.

2.7.3. DERIVED NOUNS

Synchronically-derived nouns may be sub-divided as follows:

1. Place-of-Origin Nouns,
2. Agentive Nouns,
3. Verbal Derivative Nouns,
4. Proprietary Titles,
5. Age Titles,
6. Nicknames,
7. GBEBA names,
8. Names of Animals, and
9. Place Names.

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6. cp. Salami (1966) for similar ABIKU names in Yoruba.

2.7.31. PLACE OF ORIGIN NOUNS

These are formed by suffixing to a stem one or other of the following bound morphemes:-

-nɔ̀ (masculine singular, or general singular);

-jɔ̀ (feminine singular);

-lí (masculine plural, or general plural);

-jí or -jihĭ (feminine plural).

The masculine forms are commoner and are generally applicable to both sexes, whereas the feminine forms are used only when it is desired to be specific as regards the male-female distinction.

The stems are free morphemes and are generally the names of a place (town, country, continent....) or of a tribe , clan or sect. A few, such as [bɔ̀fó] corn possibly imply that the grain was introduced to the Adangmes by the people concerned. [bɔ̀fónɔ̀] European is of very general applicability since the term European refers in West African English both to Europeans proper and to people who hail from places as far away from Europe as Australia and the Americas. [àwúsáno] Hausaman similarly refers to Hausas proper and also to anybody who looks like one. Hence many Northern Ghanaians are called Hausas more because they tend to be Moslems and to look and dress like Hausas than because they have any connection with Hausa as such.

In the examples given below, translations will be provided for only the stems and the masculine plural derivatives:-

Stem	Meaning	Singular Derivative	Pl.Der.	Meaning
àdáŋmə̀	Adangme tribe	àdáŋmə̀no	àdáŋmə̀li	Adangmes
		àdáŋmə̀jɔ̀	àdáŋmə̀jì	
			àdáŋmə̀jihĩ	
gə̀	Accra	gə̀nɔ̀	gə̀li	Gas
		gə̀jɔ̀	gə̀jì	
			gə̀jihĩ	
ɔhʊ̀ɛ̀	Ewe	ɔhʊ̀ɛ̀nɔ̀	ɔhʊ̀ɛ̀li	Ewes
		ɔhʊ̀ɛ̀jɔ̀	ɔhʊ̀ɛ̀jì	
			ɔhʊ̀ɛ̀jihĩ	
ɔhì̀ɛ̀	Twi	ɔhì̀ɛ̀nɔ̀	ɔhì̀ɛ̀li	Twis
		ɔhì̀ɛ̀jɔ̀	ɔhì̀ɛ̀jì	
			ɔhì̀ɛ̀jihĩ	
àwúsá	Hausa	àwúsánɔ̀	àwúsáli	Hausas
		àwúsájɔ̀	àwúsájì	
			àwúsájihĩ	
bɔ̀fó	corn	bɔ̀fónɔ̀	bɔ̀fóli	Europeans
		bɔ̀fójɔ̀	bɔ̀fójì	
			bɔ̀fójihĩ	
ŋlɛ̀ɛ́sì	English	ŋlɛ̀ɛ́sìnɔ̀	ŋlɛ̀ɛ́sìli	Englishmen
		ŋlɛ̀ɛ́sìjɔ̀	ŋlɛ̀ɛ́sìjì	
			ŋlɛ̀ɛ́sìjihĩ	

Stem	Meaning	Sg. Derivative.	Plural Der.	Meaning
anãgó	Nigerian	anãgónɔ̀	anãgóli	Nigerians
		anãgójɔ̀	anãgójì	
			anãgójihĭ	
kɔ́pé	village	kɔ́pénɔ̀	kɔ́péli	villagers
		kɔ́péjɔ̀	kɔ́péjì	
			kɔ́péjihĭ	

2.7.32. AGENTIVE NOUNS

Agentive nouns are synchronically derived from verb stems by the suffixation of the following two bound morphemes:-

-lɔ (singular)

-li (plural)

Agentive nouns may be derived from almost any transitive verb stem. Some intransitive verbs such as [bìɛ́] to be foolish are also productive of such derivations but others such as [tã̀] to get finished and [hè ɔ̀] to be fast do not participate in this construction. It is not intended to pursue this distinction within the sub-class of intransitive verbs further in this thesis. The discussion will be related to transitive verbs only, since they evince greater generality as regards this construction than do intransitive verbs.

Transitive verbs may be sub-divided into three to facilitate the description of the stems:-

(i) monomorphemic verbs, such as [dʒu] to steal;

(ii) verb-noun collocations, such as [ŋɔ̀ ŋã̀] to tell a lie;

(iii) Serial verbs, such as [hé je] to believe.

Only one serial verb has been isolated so far but that sub-division is maintained to account for any others that may be subsequently found. The stems are formed as follows:

(i) Agentive nouns derived from monomorphemic verbs have the verb word as their stem, e.g. [d3u-];

(ii) Those derived from verb-noun collocations have a stem formed by transposing and conflating the verb and the noun, thus [ŋɔ́ nɛ́] yields the stem [nɛ́ŋɔ-];

(iii) The serial verb [hé je] is unlike the other verb sub-divisions in that it is composed of two verbs [hé] to buy and [je] to eat which, even when they are in serial construction, are individually inflected for tense, mood, aspect and positivity, as in

68. ɪ́ hé ɔ je ɔ. I believe

69. ɪ́ hé je I believed

70. ɪ́ hé we jɪ́ I do not believe or I did not believe.

Agentive nouns formed from [hé je] have as their stem a conflation of the two verbs, namely [héje-].

The stems in the following examples are labelled according to the format used above. Note that there is no gender distinction in agentive nouns; translations are provided for the verbs and for plural agentive nouns only:

Verb	Meaning	Stem	Singular Agentive N.	Pl.Ag.Noun.	Meaning
d3u	to steal	(i) d3u-	d3ulɔ [7]	d3uli	thieves
ŋùà	to curse	(i) ŋua-	ŋualɔ	ŋuali	cursers
ŋɔ̀ ŋà	to tell a lie	(ii) ŋãŋɔ-	ŋãŋɔlɔ	ŋãŋɔli	liars
kpá̰ ŋmlàá	to shout	(ii) ŋmlàákpá̰-	ŋmlàákpá̰lɔ	ŋmlàákpá̰li	shouters
hé je	to believe	(iii) héje	héjelɔ	héjeli	believers

. . .

2.7.33. VERBAL DERIVATIVE NOUNS

This term covers those nouns, other than agentive nouns, that are synchronically derived from verbs. Such derivations are of two types, depending on the type of suffix they employ:-

(a) those derived by the suffixation of -mĭ to a stem;

(b) " " " " " " -hé " " " .

The stems are of the three sub-divisions established in 2.7.32. above. Stem-formation is different only in the case of the serial verb.

Verbal derivative nouns of type (a) will be called GERUNDS.

. . .

2.7.331. GERUNDS

Stems for the monomorphemic and verb-noun collocation sub-classes are identical to those described in 2.7.32 . above. The serial verb yields a discontinuous stem linked by the additive conjunction [kɛ] and, thus [he- kɛ je]. In the following examples, the stems

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7. This agentive noun is unique in having an alternative singular form [d3uɔ] and plural form [d3uɔhĭ], see 3.3.231.

are again labelled according to types.

Only singular examples are given, but each singular verbal derivative noun has associated with it a plural equivalent formed by the reular suffixation of [-hĭ] to the singular form. Thus the first example could read [d3umĭ] theft, [d3umĭhĭ] thefts:-

Verb	Meaning	Stem	Verbal Derivative Noun	Meaning
d3u	to steal	(i) d3u-	d3umĭ	theft
nùà	to curse	(i) nua-	nuamĭ	a curse.
ŋɔ̀ nã	to tell a lie	(ii) nãŋɔ-	nãŋɔmĭ	lying, a lie
kpá ŋmlàá	to shout	(ii) ŋmlàákpá-	ŋmlàákpámĭ	shouting
hé je	to believe	(iii) hé- kɛ je-	hémĭ kɛ jemĭ	faith
gbè lɔ̀	to kill fish	(ii) logbe-	logbemĭ	fishing
ne je	to believe	(iii) hé- kɛ je-	hémĭ kɛ jemĭ	faith
gbè lɔ̀	to kill fish	(ii) logbe-	logbemĭ	fishing

An interesting feature of sub-division (i) and (ii) nouns is that the stems are free morphemes and are frequently used on their own as nominalizations, so that the following pairs of utterances are used side by side in the language as free variants:

71. d3umĭ sãne — The case of theft
(theft - matter)

72. d3u sãne — the case of theft
(to steal - matter)

73. logbemĭ kɔ́pé — Fishing village
(fishing - village)

74. lɔgbè kɔ́pé — Fishing village

2.7.332. -hé suffixed forms

Verbal derivative nouns formed by the suffixation of the bound morpheme [-hé] have, for sub-divisions (i) and (ii), stems identical to those described in 2.7.32 . above. The stem for the serial verb is the whole of the gerund (i.e. the -mĭ suffixed noun) given above.

Only singular examples are given below; each of these has a plural form obtained by the regular suffixation of the bound morpheme [-hĭ] to the singular form, so that the first example has the singular form [dʒuhé] place for stealing (i.e. "place for learning the art of theft"), and the plural form [dʒuhéhĭ] places for stealing. The stems for the examples given below are again labelled:

Verb	Meaning	Stem	Verbal Derivative Noun	Meaning
dʒu	to steal	(i) dʒu-	dʒuhé	place for stealing
du he	to have a bath	(ii) hedu-	heduhé	bathroom
hé je	to believe	(iii) hémĭ-kɛ-jemĭ-	hémĭ-kɛ-jemĭhé	place for faith

2.7.34. PROPRIETARY TITLES

As their name implies, these denote ownership, but they do so in an extended sense. They are used ordinarily like other nouns (i.e. as subjects or objects of verbs, etc.) and also as addressives. Exceptions to the latter use include [hiɔtʃɛ] invalid which has obvious unpleasant associations.

Proprietary titles may be sub-divided into two, depending on their morphological structure.

2.7.341. The first group is formed by suffixing [-tʃɛ] father and [-ɲɛ̀] mother to any Personal Name (see 2.7.2.) other than Nicknames to denote parentage. The resultant words are the commonest names by which adults who have children are called, since it is considered impolite to call such people by their own names. Here are examples:-

Name of Child	Father's Title	Mother's Title
tɛ̀té	tɛ̀tétʃɛ	tɛ̀téɲɛ̀
kɔ̀kɔ́	kɔ̀kɔ́tʃɛ	kɔ̀kɔ́ɲɛ̀

Usually, only the first child's name is used in this way, but this is by no means a rigid rule. Owing to the high productivity of this morphological construction, attempts have light-heartedly been made to derive a feminine form [tíɲɛ̀] from the English loanword [títʃɛ] teacher.

[tɛ̀tétʃɛ] and [dèdéɲɛ̀] (derived respectively from the names for the first son and the first daughter of a woman) are often used in a special idiom in conjunction respectively with the words [nɔ̃mɔ̃] man and [jɔ̀] woman to denote a person who is old enough to have a child. Such expressions are often used to reprove people for childishness, as in

mɔ̀ nɔ̃mɔ̃ tɛ̀tétʃɛ .....
mɔ̀ jɔ̀ dèdéɲɛ̀ ..... } Grown though you are, ...

These NP elements exhibit relations of apposition (2.2.13.).

2.7.342. The second group of Proprietary Titles is formed by suffixing [-tʃɛ] (but not [-ɲɛ̀], hence there is no gender distinction) to non-human and non-derived nouns to denote associations that vary according to the meaning of the stem chosen. Such titles have a regular plural equivalent formed by the suffixation of [-mɛ̃] (see 3.3.231.) to the singular form, so that [hiɔtʃɛ] invalid has the plural form [hiɔtʃɛmɛ̃] invalids. Only singular forms are given in the examples cited below:-

Stem	Meaning	Proprietary Title	Meaning
àzɛ̀ɔ̀	laziness	aziɔtʃɛ	lazy-bones
hɛ̀ɔ̀	illness	hiɔtʃɛ	invalid
lɔ̀	fish, meat	lɔtʃɛ	fishmonger, meat seller.
we	house	wetʃɛ	landlord

2.7.35. AGE TITLES

Age titles are generally used as a recognition of an addressee's adult status. Although by and large Adangme society is no longer organized by age groups, considerable importance is attached to age in the social hierarchy and people older than oneself, whether they are previously known or not, claim and are accorded the respect due to them by virtue of their age.

The two commonest Age Titles are [wawetʃɛ] elder brother (literally "our male house-owner" or "our landlord") and [wawejɛ̀]

elder sister (literally "our female house-owner" or "our landlady"). They differ from the Proprietary titles listed in 2.7.341. in that the latter may optionally be followed by a Day- or Order-of-Birth name, whereas Age Titles are generally so followed, except in cases where they are used sarcastically to address people younger than onself, or are used to hail unknown people. In the following examples of the use of Age Titles, the NP elements are, again, in appositional relationship:

wawetʃɛ tɛ̀tɛ́	Elder Brother Tete
wawenɛ̀ kɔ̀kɔ́	Elder Sister Koko

These addressives are commonly used by people other than one's own brothers and sisters and are usually replaced by the Proprietary Titles listed in 2.7.341. after one has had children. Thus a person called Wawetsɛ Tɛ̀tɛ́ whose first son is christened John would subsequently be called Johntsɛ.

2.7.36. NICKNAMES

Nicknames are synchronically derived at will for particular occasions and are often very ephemeral. An example of one of the more stable ones is

[nɛ̀mɪ̀ - nɛ́ - à - pà] meaning "mouth-that-has-been-opened".
(mouth-which-they-opened)

It is used to tease people who are inclined to leave their mouths gaping most of the time.

2.7.37. GBEBA NAMES

Here are examples of a few synchronically-derived GBEBA names that were ruled out of 2.7.27. on account of their morphological structure; hyphens are used in these examples to mark morpheme boundaries:

Name	Literal Meaning	Idiomatic Meaning
Á-fɔ̃-he	Let them throw away	Junk
À-sɔ̃ŋmé-wɔ̀	They don't like us	Undesirable Ones

2.7.38. GENDER in the names of animals is denoted by the suffixation of [-kú] male and [-jɔ̀] female to the names of the animals concerned. The unsuffixed names are also commonly used; note that there is no grammatical gender in Adangme. Examples of such names of animals are:

nɛ̃	cattle	nɛ̀kú	bull	nɛ̀jɔ̀	cow
kɔ̃ŋɔ́	chicken	kɔ̃ŋɔ́kú	cock	kɔ̃ŋɔ́jɔ̀	hen
gbé	dog	gbékú	male dog	gbéjɔ̀	bitch
tɔ̀	goat	tɔ̀kú	he-goat	tɔ̀jɔ̀	she-goat

Nouns in the first two columns are pluralized by the suffixation of the bound morpheme [-hĩ]. Those in the third column replace the singular suffix [-jɔ̀] by either of the plural suffixes [-jì] or [-jihĩ], e.g.

tohĩ	goats	tokúhĩ	he-goats	tɔ̀jì tɔ̀jihĩ	she-goats

2.7.39. DERIVED PLACE NAMES

Most Adangme place names appear to be synchronically-derived. They generally contain some reference to a river, hill or other geographical landmark in the area, or else contain an allusion to the founder of the town or village. In the examples given below, comments are offered on the place names with less certainty in some cases than in others, since some allusions are so obscure that only local people can give satisfactory explanations for them.

(a) Names including [kɔ́pé] village:

àtɔ́tɔ́kɔ́pé - pineapples [àtɔ́tɔ́] are grown in and associated with this village.

sísàkɔ́pé - this is the original home of the Caesar family.

ɔ̀kɑ̃́sɛ̀kɔ́pé - this is the original home of the Ocansey family

detʃɛkɔ́pé - [detʃɛ] means hunter; a famous hunter must have founded the village.

(b) Names including [ɔ̀kú] old:

ɔsúɔ̀kú - this was one of the earliest Adangme settlements: [ɔ̀kú] was probably added to [ɔsú] to distinguish this town from the Christiansborg suburb of Accra which is called [ɔsú] in both Gã and Adangme.

wedɔ̀kúmɪ̀ - [we] means home; this is the name of an old village near Dodowa.

(c) Other Names:

dʒɜ̀mílà - the allusion is to one John Miller, a road engineer who worked in the area.

mɛ̀tétʃɛ - literally Mɛ̀té's father.

amlɛ̄kpo - [kpo] means hill; the origin of this name is obscure.

kɔ̀lɔ̀édɔ̀ - [kɔ̀lɔ̀é] means tortoise and [dɔ̀] means brook; there are a lot of tortoises near a brook on the outskirts of this village.

àkúsɛ̀ - [àkú] is a river on the banks of which this town was founded; [sɛ̀] means back.

sómɛ̄ɲā
àgɔ̀mɛ̄ɲā
lólóɲā - [ɲā] means mouth or bank of a river; the other elements in these names have obscure origins.

2.8. TYPES OF PRONOUN

This subject is discussed fully in 3.2. below.

2.9. TYPES OF ADJECTIVE

2.9.1. Possessives fill place "a" in Simple NP structure as set out in 2.3. above. They will be discussed alongside Pronouns in 3.2. below.

All other adjectives fill place "e" in Simple NP structure but may fill place "d" - the place for the Nominal Head - if no noun is present in the same Simple NP (see 2.5.). There may be more than

one adjective in a Simple NP. In such cases, the adjectives follow an order which will be explained and labelled in association with illustrative examples below. This order is merely a clue to tendencies of occurrence and is subject to stylistic and other variations. Such variations of sequence are not considered here to be of an extreme enough nature to invalidate the statements made below about the order in which types of adjectives occur in Simple NPs. Here are examples:

75. tʃo kpã́ (A) — A different stick (or tree).

76. tʃo gagaa (B) — A long stick

77. tʃo gagaa kpã́ (B A) — A different long stick.

78. tʃo fútáá (C) — A white stick

79. tʃo fútáá gagaa kpã́ (C B A) — A different long white stick.

80. tʃo tàtɛ̀é (D) — Chewing stick

81. tʃo tàtɛ̀é fútáá gagaa kpã́ (D C B A) — A different long white chewing stick.

As these examples show, adjectives tend to follow a certain order in NPs. The letters "A" to "D" have been used to label the adjective types above. Although it is conceivable that longer structures can be formed along these lines, it is proposed to exemplify this feature of Adangme with just these sentences and to state the following semantic correlates for the types of adjective:

A - general characterizing adjectives;

B - "size" adjectives;

C - "colour" adjectives;

D - verbal derivative adjectives.

. . .

2.9.2. Type D constitutes a type of adjective whose morphological structure is discussed in detail in 6.3.3. below. Only illustrative examples will be given here. One need only comment, prior to the citing of the examples, that adjectives such as [júmūū] black and [tʃutʃuu] red are considered here to be Type C - i.e. colour - adjectives rather than Type D adjectives because the derivational process by which they may be linked respectively to the verbs [jú] to be black and [tʃu] to be red is not as productive of adjectives as the process from which Type D adjectives are derived. (In fact these two adjectives are the only colour adjectives found to be derived from verbs.) And, in any case, the verbs [jú] and [tʃu] have Type D adjectival derivatives as well, namely [júʃúí] and [tʃutʃúí].

Here are examples of Type D adjectives:

Verb	Meaning	Derived Adjective	Meaning
tà	to chew	tàtàé	chewing
dò	to dance	dòdòé	dancing
sa	to rot	sasé	rotten
sá	to snatch	sásé	snatched
sà	to sieve	sàsàé	sieved

2.9.3. Section 2.9. has so far dealt with singular forms of adjectives. Although the Category of Number is dealt with in detail in 3.3., it is proposed to outline here the operation of the Category of Number in Simple NPs in which place "e" is filled (by an adjective) but place "g" (for the determinative) is not filled as well. Simple NPs with both places "e" and "g" filled are discussed in 3.3.

Virtually all singular adjectives (3.3.22.) have a plural equivalent that is formed by the suffixation of [-hĩ] to the singular form. Plurality in Simple NPs in which place "e" but not place "g" as well is filled is manifested in two ways:

(i) if such a Simple NP contains only one adjective, that adjective is inflected for number and may, in addition, be repeated for emphasis:

82. tʃo àgbɔ̀ Big stick, or Big tree

83. tʃo àgbɔ̀hĩ Big trees

84. tʃo àgbɔ̀hĩ-àgbɔ̀hĩ Very big trees, or Many big trees or

85. tʃo àgbɔ̀-àgbɔ̀hĩ Very big trees, or Many big trees

(ii) if such a Simple NP contains more than one adjective, only the last one is inflected for number; it may, in addition, be repeated for emphasis, as in:

77. tʃo gagaa kpã́ A different tall tree or
A different long stick

86. tʃo gagaa kpã́hĩ Different tall trees .....

87. tʃo gagaa kpã́hĩ-kpã́hĩ Very different tall trees
or Many different tall trees

These examples illustrate the reason why it has been considered most illuminating to treat the Simple NP as an integrated and unified entity, and to relate statements about the category of number primarily to the NP as such rather than to any of its constituent elements (see 3.3.).

2.9.4. Type B and C are like some intensifiers and all distributive numerals in having homophonous adverbs that collocate only with verbs, as in:

87a. tʃo ɔ ka — The tree is tall
(tree - the - is tall)

87b. tʃo ɔ ka gagaa — The tree is very tall
(tree - the - is long - tall)

cp.
87c. tʃo ɔ ka sǎmíɲà — The tree is very tall
(tree - the - is tall - very)

and
87d. tàdé ɔ tʃu ɔ tʃutʃuu — The garment is bright red
(garment - the - is red - red)

cp.
87e. tàdé ɔ tʃu ɔ sǎmíɲà — The garment is very red.
(garment - the - is red - very)

2.10. TYPES OF NUMERAL

2.10.1. Adangme has a decimal numeral system. All numerals, except [káke] one which is a 4-form unit, are 3-form units. For

this and for syntactic reasons that are dealt with in 2.10.32. below, [kákɛ] and its derivatives might be set apart from the rest.

Three form-classes are set up to account for the morphology and syntax of numerals: these are Cardinals, Ordinals and Distributives. All three fill place "f" in Simple NP structure: on certain occasions (see 2.5.5.) they fill the Nominal Head place, i.e. place "d". A sample of Numerals is set out below.

2.10.2.	Cardinals	Ordinals	Distributives
1	kákɛ	kéklé, kéklééklé	kákáákáká
2	énɔ̀	énɔ̀né	énɔ́ɔ́nɔ̀
3	étɛ̃	étɛ̃né	étɛ̃́ɛ̃́tɛ̃
4	éwìɛ̀	éwìɛ̀né	éwíɛ́ɛ́wìɛ̀
5	énʊ̃ɔ̃	énʊ̃ɔ̃né	énʊ̃́ɔ̃́nʊ̃ɔ̃
6	ékpà	ékpànné	ékpáákpà
7	kpaago[8]	kpaagoné	kpaago-kpaago
8	kpààŋɔ̀	kpààŋɔ̀né	kpààŋɔ̀-kpààŋɔ̀
9	nɛ̃ɛ̃	nɛ̃ɛ̃né	nɛ̃ɛ̃-nɛ̃ɛ̃
10	ɲɔ̀ŋmã́	ɲɔ̀ŋmã́né	ɲɔ̀ŋmã́-ɲɔ̀ŋmã́
11	ɲɔ̀ŋmã́-kɛ-kákɛ	ɲɔ̀ŋmã́-kɛ-kákɛné	ɲɔ̀ŋmã́-kɛ-kákáákáká
12	ɲɔ̀ŋmã́-kɛ-énɔ̀	ɲɔ̀ŋmã́-kɛ-énɔ̀né	ɲɔ̀ŋmã́-kɛ-énɔ́ɔ́nɔ̀
20	ɲĩmĩ́-énɔ̀	ɲĩmĩ́-énɔ̀né	ɲĩmĩ́-énɔ́ɔ́nɔ̀

8. It is tempting to interpret "7", "8" and numerals derived from them as "6+1", "6+2", etc., but there is no supporting evidence. For an instance of this system of numeration, see Wilson (1961), p. 373.

	Cardinals	Ordinals	Distributives
21	ɲĩmĩ-ényɔ̀-kɛ-kákɛ	ɲĩmĩ-ényɔ̀-kɛ-kákɛnɛ́	ɲĩmĩ-ényɔ̀-kɛ-kákáákáká
22	ɲĩmĩ-ényɔ̀-kɛ-énɔ̀	ɲĩmĩ-ényɔ̀-kɛ-énɔ̀nɛ́	ɲĩmĩ-ényɔ-kɛ-énɔ́ɔ́ɲɔ̀
30	ɲĩmĩ-étɛ̃	ɲĩmĩ-étɛ̃nɛ́	ɲĩmĩ-étɛ̃ɛ̃́tɛ̃
40	ɲĩmĩ-éwìɛ̀	ɲĩmĩ-éwìɛ̀nɛ́	ɲĩmĩ-éwíɛ́ɛ́wìɛ̀
100	làfá	làfánɛ́	làfá-làfá
200	làfá-énɔ̀	làfá-énɔ̀nɛ́	làfá-énɔ́ɔ́ɲɔ̀
1000	àkpé	àkpénɛ́	àkpé-àkpé
2000	àkpé-énɔ̀	àkpé-énɔ̀nɛ́	àkpé-énɔ́ɔ́ɲɔ̀

2.10.31. CARDINAL NUMERALS

The concordial relations of Cardinal Numerals with nominals with which they colligate are quite complicated, and are discussed with regard to sub-classifications of nouns in 3.3. It will be sufficient at this stage to state merely that Cardinal numerals are inflected for number.

They are organized on a decimal basis, so that "11" is "10" and "1", "12" is "10" and "2", "19" is "10" and "9", etc. "20" and other whole-number multiples of "10" up to and including "90" are formed by suffixing the appropriate unit (i.e. "1" to "9") numeral to a derivative of "10". Thus "20" is "two-tens", "30" is "three-tens", etc.

"100" is an independent base form from which whole-number multiples are formed, so that "200" is "two-hundred" and "300" is "three-hundred", etc.

"1000" is likewise an independent base form.

2.10.32. ORDINAL NUMERALS

Ordinal numerals fill two places in Simple NP structure: [kéklé] first and its allomorph [kéklééklé] (the) very first, which correspond to cardinal [káke] one, fill place "c"; all other ordinal numerals fill place "f", whether or not place "c" is filled as well. An ordinal numeral may also fill place "d", the Nominal Head place.

Cardinal numeral [káke] one is unique in having two ordinal forms [kéklé] and [kéklééklé].

All other cardinal numerals have only one corresponding ordinal numeral; it is formed by suffixing [-né] to the relevant cardinal numeral, except that [-kákené] replaces [-kéklé] in "21st", "31st", "41st", etc.

Ordinal numerals are inflected for number and may colligate with either singular or plural nominals.

2.10.33. DISTRIBUTIVE NUMERALS

2.10.331. These have three functions:

(i) The first is, strictly speaking, adverbial and therefore falls outside the scope of this thesis. Examples are:

88. à dʒè kákááká — They left singly.

89. à dʒè eɲ̋ɔ̋ɲɔ̀ — They left in pairs

cp.

90. à dʒè mlã́ — They left early

(ii) In their second function they are Nominal Heads (2.5.) as in:

91. ì hé énɜ́ɜ́nɜ̀ — I bought two of each

cp. 92. ì hé énɜ̀ — I bought two

(iii) In their third function, they fill place "f" in simple NP structure and approximate in meaning to one each, two each, etc. as in

d f
93. sɛ̌ kákááká ŋɛ tʃû ɜmɛ̌ a mì̀

(seat - one each - is - room - the (pl.) - their - inside)

There is one chair in each of the rooms

d f
94. sɛ́ énɜ́ɜ́nɜ̀ ŋɛ tʃu ɜmɛ̌ a mì̀

There are two chairs in each of the rooms

2.10.332. Distributive numerals corresponding to Cardinals "1" to "6" are formed in two ways:

(i) [káke] one has the distributive form [kákááká];

(ii) Cardinal numerals "2", "3", "4", "5", and "6" are vowel-initial. They form their distributive congeners by inserting between the vowel and the rest of the cardinal numeral form concerned a structure composed of the latter with a lengthened final vowel. Thus [énɜ̀] two yields [énɜ́ɜ́nɜ̀], and [étɛ̌] three yields [étɛ́ɛ́tɛ̌], etc.

2.10.333. Distributive equivalents for cardinal numerals bigger than "6" are formed in either of two ways, depending on the morphological structure of the cardinal numeral concerned:

(i) those that are monomorphemic form their distributive equivalents by a mere reduplication of the cardinal numeral concerned, so that [kpaago] seven yields [kpaago-kpaago], [nɛ̀ɛ́] nine yields [nɛ̀ɛ́-nɛ̀ɛ́], [làfá] hundred yields [làfá-làfá], and [àkpé] thousand yields [àkpé-àkpé], etc.

(ii) those numbers bigger than "6" whose cardinals are polymorphemic form their distributive equivalents by subjecting the last morpheme of their cardinal forms to whichever is the appropriate one among the three processes described above. Thus [làfá-ɛ́ɲɔ̀] two hundred has the distributive form [làfá-ɛ́ɲɔ́ɔ́ɲɔ̀] and [ɲɔ̀ŋmǎ-kɛ-káke] eleven yields [ɲɔ̀ŋmǎ-kɛ-kákáákà].

2.10.4. The word [fǎ] half may be termed a "pseudo-numeral". It has cardinal form [fǎ], an ordinal form [fǎné], and a distributive form [fǎ-fǎ]. These are commonly used in conjunction with other numerals, as in:

ɛ́ɲɔ̀-kɛ-fǎ	Two and a half
ɛ́ɲɔ̀-kɛ-fǎné	Two and a halfth (in order of counting)
ɛ́ɲɔ̀-kɛ-fǎfǎ	Two and a half each

2.11. TYPES OF DETERMINATIVE

2.11.1. Determinatives are a set of post-Head qualifiers that fill place "g" in the Simple NP as described in 2.3. They are inflected for number and are of the following three types: deictics,

indefinite articles and demonstratives.

2.11.2. The Deictic

The deictic or definite article has singular forms [ɔ], [ɜ], [a] and [ã], and corresponding plural forms [ɔmɛ̃], [ɜmɛ̃], [amɛ̃] and [ãmɛ̃]. The major restrictions governing their use are that they do not colligate with Series One Subject Pronouns; they may colligate with Series Two Subject Pronouns only in BOUND NPs (see 2.4.22.), and they do not colligate with Quantifiers operating as Heads (2.5.6.). They are distributed as follows:

(i) [a] and [amɛ̃] collocate with nominals ending in [-a];

(ii) [ã] and [ãmɛ̃] collocate with nominals ending in [-ã];

(iii) [ɔ] and [ɔmɛ̃] collocate with nominals ending in oral vowels other than [-a]; and

(iv) [ɜ] and [ɜmɛ̃] collocate with nominals ending in nasalized vowels other than [-ã].

Nasalization in these deictics is discussed in 6.3.2. below. Here are examples illustrating the use of the deictic, with the deictic and the "conditioning" nominal underlined:

42. kéklé futáá a pũɛ̃ — The first white one is spoilt

44. ...àkɔ̀dũ fũfũĩ ékpà amɛ̃ — ...the six ripe bananas

26. nã̀ nɔ túé klè — This cow's ear is big.

41. dʒãmã̀ ɲɔ̃ɲmã̀ ãmɛ̃ hìè — Those ten are enough

9 ì nǎ ðkpɔ̀ ɔ — I saw the dove

40 dʒǎmǎdʒe tʃutʃu ɔmɛ̌ hĺ — Those kinds of red ones are bad.

6 jé nĺ ɜ. — Finish your meal.

95 nĺ ɜ̀mɛ̌ gbɛ̀ — The things are scattered.

The concordial relations of the deictic with other elements of NP structure will be discussed in 3.3.

2.11.3. The Indefinite Article

The indefinite article has a singular form [ko] and a plural form [komɛ̌]. Its concordial relations with other elements of NP structure are analogous to those of the deictic. Examples of its use are:

96. gbé ko kɜ̀ mĺ — A certain dog bit me.

(dog - a certain - bit - me)

97. gbé komɛ̌ kɜ̀ mĺ — Certain dogs bit me.

(dog- certain(pl.) - bit - me)

98. há ko pɔ̀ mĺ — A certain knife injured me.

(knife - a certain - cut - me)

99. há komɛ̌ pɔ̀ mĺ — Certain knives injured me.

(knife - certain(pl.) - cut - me)

100. e hūɛ̌ ko ba — A certain friend of his came.

(his - friend - a certain - came)

a d g
101. e hũẽ komẽ ba — Certain friends of his came.

(his - friend - certain (pl.) - came)

d g
102. nɜ̃mlɔ ko bé híɔ — There is nobody here.

(person - a certain - is not - here)

The indefinite article also has an invariable form [kokooko] which is often used in negative sentences for emphasis. Thus the last example might be rendered as

d g
103. Nɜ̃mlɔ kokooko bé híɔ — There isn't a single person here.

2.11.4. The third type of determinative comprises demonstrative singular [nɔ] and plural [nɔmẽ] which, like the definite and indefinite articles discussed above, exhibit concord of number with some types of nominal construction but not with others (see 3.3.) below. Examples of their use will suffice here:

d f g i
64. nãfíí káke nɔ pó hìè — Even this little one is enough

(little - one - this - even - is sufficient)

d g
15. mà nɔ — This town

d g
104. nɜ̃mlɔ nɔ hî — This person is kind (or good looking).

d g
105. nĩmli nɔmẽ hî — These people are kind (or good-looking.)

2.11.5. A note on [dʒãmã]

When [dʒãmã] fills place "b" of the Simple NP as described in 2.3., its meaning varies according to whether or not place "g" is

filled (i.e. whether there is a determinative in the Simple NP concerned). Here are examples:

106. d3ãmã d3úkũ̃ hĭ — That type of child is good.

107. d3ãmã d3úkũ̃ hǐ — That type of child is not good.

108. d3ãmã d3úkũ̃ ko hǐ — A certain child of that type is not good.

109. d3ãmã d3úkũ̃ ɜ̃ hǐ — That child is not good.

110. d3ãmã d3úkũ̃ nɔ hĭ — This child here is good.

cp.
111. d3úkũ̃ nɔ hĭ — This child is good.

It would seem feasible to treat [d3ãmã], in certain uses, as the first element of a discontinuous determinative. Such a treatment would account for the difference between Sentences 110 and 111 while at the same time not invalidating Sentences such as number 106 where [d3ãmã] occurs without an accompanying determinative.

The intonation of NPs of which determinatives are a part is dealt with in 7.4.2. below.

2.12. QUANTIFIERS

Quantifiers are a set of post-Head qualifiers that fill place "h" in the Simple NP as described in 2.3. above. Those isolated up to date are:

ɲããke	alone;
kúláá	all;
bɔ̀ɔ́ / sãĩĩ	a little, quite a few;
bàbàóó / fúú / tɔ́tɔ́ɔ́tɔ́ / tɔ́ / abɔ / sɔ̃̀ɔ̃́	plenty of, many

These colligate directly (i.e. in two-word simple NPs having a noun as Head) with any plural noun and with some singular nouns (see 3.3.232. below), as in:

61. nĩmli fúú ba (d h) A lot of people came.

112. ɲĩ̀ bɔ̀ɔ́ (d h) A little water

Apart from [ɲããke], [sɔ̃̀ɔ̃́] and [tɔ́], any quantifier may operate as Head of a Simple NP (see 2.5.6. above).

Quantifiers may also colligate directly (i.e. in 2-word Simple NPs having adjectives as Head) with both plural and singular adjectives as in:

113. àgbòhĩ fúú dɔ̀ɛ̀ (d h) A lot of big ones left

114. tʃutʃuu sãĩĩ sɛ̀ mĩ̀ (d h) Quite a few red ones entered

In 2-word Simple NPs having a numeral as Head, however, [sɔ̃̀ɔ̃́] is the only quantifier that may collocate with a numeral

as in:

115. ékpà sɜ́ɜ́ lâá — As many as six got lost.

2.13. INTENSIFIERS

2.13.1. Intensifiers are a set of post-Head qualifiers that fill the last place in the Simple NP as described in 2.3. above. Those isolated up to date are:-

nɪ́tʃɛ	-self;
nɪ́tʃɛmɛ̌	-selves;
pɔ́ / pɔ́hʊ̄ / kpāmàkpā	even;
nɜ́ɜ́ / tʊ̄tʊ́ʊ́tʊ̄ / pɛ́pɛ́ɛ́pɛ́	exactly;
pɛ́	only
títʃi	especially
hʊ́ / hʊ́ʊ̀	also, too

Of the last pair, the latter occurs only in utterance-final or pre-pausal position, and is in complementary distribution with the former.

[nɪ́tʃɛ] is unique among intensifiers in that it is inflected for number and can be reduplicated for emphasis.

2.13.2. Intensifiers may colligate with pronouns or with other Nominal Heads (2.5.). The only pronoun series they colligate with are Emphatic pronouns (3.2.23.) and the resultant Simple NPs are always bound (2.4.22.) hence they can occur in Compound NPs only after they have been embedded in Complex NPs. This is one of the reasons why it has been found advantageous to consider the three types of NP as forming a hierarchy and to treat Complex and Compound NPs as being composed of Simple NPs. Examples of embedded Simple NPs are to be found in 120, 122, 124 and 126 below:

116. kòfí dʒí sɔ̃lɔ ɔ nɛ́ — Kofi is the blacksmith

(Kofi - is - blacksmith - the)

117. lɛ̀ dʒí sɔ̃lɔ ɔ nɛ́ — He is the blacksmith

(he - is - blacksmith - the)

118. lɛ̀ nɪ́tʃɛ dʒí sɔ̃lɔ ɔ nɛ́ — He himself is the blacksmith.

119. e ba — He came

120. lɛ̀ nɪ́tʃɛ e ba — He himself came

(he - himself - he - came)

121. a ba — They came

122. mɛ̃ nɪ́tʃɛmɛ̃ a ba — They themselves came

(they - themselves - they - came)

123. lɛ̀ nɔ̃́ɔ̃́ dʒí sɔ̃lɔ ɔ nɛ́ — He exactly is the blacksmith

d d
124. lɛ̀ nɔ́ɔ́ e ba It was exactly he who came

(he - exactly - he - came)

but d i
125. Kɔ̀fí nɔ́ɔ́ ba It was exactly Kofi who came

Here, finally, is an example of a bound Simple NP of this type operating in Compound NP structure (2.2.12.) after being embedded in a Complex NP:-

d i a d g a d g
126. i dʒua lɛ̀ pɔ́ ẹ nã̄ ã̄ kɛ o we ɔ

(I - sold - he - even - his - cow - the - and - your(sg.) - house - the)

I even sold his cow and your house.

2.13.3. With the exception of [nít͡ʃɛmɛ], [hṹ] and [títʊi], the intensifiers listed above resemble distributive numerals and some adjectives but are unlike other NP elements in having homophonous adverbial counterparts that collocate with verbs. Here are examples of these adverbs:

127. è klɛ̀ He is big

128. è klɛ̀ nít͡ʃɛ He is really big.

129. è klɛ̀ hṹṹ̀ He is also big

cp.
130. è klɛ̀ sã̀míɲã̀ He is very big

Intensifiers as a whole cannot be grouped with adverbs, since the two word classes have mutually-exclusive syntactic positions.

3. CATEGORIES OF THE NOMINAL PIECE

3.1. The grammatical categories that apply to the NP are those of Person (3.2. below) and of Number (3.3. below). The former applies only to those NPs whose Nominal Heads (2.5. above) are pronouns, whilst the latter has as its domain the NP taken in each case as an integrated unit.

Illustrative examples in this and in subsequent chapters will not be numbered.

3.2.1. The Category of Person

This category relates only to NPs having pronouns as Nominal Heads. It would seem necessary to justify the treatment of pronouns (or, more specifically, of subject pronouns) as elements of the structure of the NP rather than of the VP. In several other West African languages, such as Twi and Igbo, subject pronouns have been treated as elements of VP structure on the valid grounds of the vowel harmony that is an important criterion for the delimitation of the word as a grammatical unit. The Adangme material is not susceptible to such treatment since the language does not exhibit the type of vowel harmony found, for instance, in Twi and Igbo[1]. In other words, a ~~Another possible~~ justification for treating subject pronouns as elements of VP structure could be to assign to them the status of

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1. The term Vowel Harmony is used elsewhere in the thesis, but in a different sense; see 6.3.31.

prefixes to verbs. In Adangme, however, the separability of the subject pronoun from the verb is a strong argument against this approach; see the following examples in which the verb [dʒɛ̀] to leave is used:

ɔ̀ dʒɛ̀ — You(sg.) left

(you(sg.)-left)

ɔ̀ mɛ̀ɛ́ dʒɛ̀ — You(sg.) will leave

(you(sg.) - will - leave)

ɔ̀ hɪ̀ɪ́ dʒɛ̀ e — You(sg.) regularly leave

(you(sg.) - regularly - leave - ing)

ɔ̀ hɪ̀ɪ́ we ɔ mɪ̀ dʒɛ̀ e

(you(sg) - regularly - house - the - in - leave - ing)

You habitually leave the house.

In the last example, the NP in object position [wɛ̀ ɔ mɪ̀] separates the subject pronoun [ɔ̀] and the aspect marker [hɪ̀ɪ́] from the main verb [dʒɛ̀]. In each of the other three examples, [ɔ̀] is the NP and the rest of each sentence constitutes the VP.

It would seem best to take account of this separability of the subject pronoun and the verb and to treat them as separate words. It is to be noted that there is no strong reason — and vowel harmony would have been a strong reason — for treating the subject pronoun as a prefix to the aspect marker [hɪ̀ɪ́] that stands next to it in the last example.

As will be explained below, there are good reasons for treating object pronouns (i.e. Series 3, see 3.2.24. below) as elements of

VP structure.

The pronoun series are set out below. Series One and Two are Subject Pronouns, Series 3 are Object Pronouns and Series Four are Possessives.

3.2.21. Pronouns are a word-class arranged into four series, each consisting of six forms. Each series is characterized by specific syntactic functions which will be elaborated on below, and each member of a series is associated with pitch features that are statable in terms of the intonation of larger structures of which they form a part.

In the interest of clarity, the conclusions are anticipated in the labelling of the pronoun Series.

3.2.22. Series One:

No tone marks are indicated on these pronouns because their pitch features are bound up with the tonal class of verb with which they colligate and are further dependent on such categories as mood, tense, aspect and positivity that have to be set up in a full description of the structure of the VP. The pronouns are:

	singular	plural
First Person	i	wa
Second Person	o	ɲɛ̃
Third Person	e	a

Members of this series are always Nominal Words (i.e. one-word NPs, see 2.1.31.) that act as subjects to verbs other than the copula,

[dɜ́ì]; e.g.

wà dɜ̀è — We left

ò dɜ̀è — You(sg.) left

Utterances such as

* wà dɜ́ì dejali

* o dɜ́ì dejalɔ

do not occur in Adangme. [dejali] and [dejalɔ] respectively mean hunters and hunter.

The statement that pronouns of Series One are always Nominal words implies, of course, that they never colligate with any other element of NP structure.

They are in complimentary distribution with pronouns of Series Two.

3.2.23. Series Two:

	Singular	Plural
First Person	ámí	wɔ̀
Second Person	mɔ̀	ɲɛ̀
Third Person	lɛ̀	mɛ̀

These pronouns have several functions.

3.2.231. Like pronouns of Series One, these pronouns are also subject pronouns. Unlike the former, however, they function as Heads (not necessarily in one-word NPs) of NPs that colligate only with the copula [dɜ́ì] as in:

wɔ̀ dʒí dejali We are hunters

(we - are - hunters)

mɔ̀ dʒí kɔ̀fí ɔ? Are you Kofi?

(you(sg.) - are - kofi - the?)

3.2.232. Series Two pronouns are also used in Nominal Clauses (2.1.34.), as in (the Nominal clauses are underlined):-

mɔ̀ àgbɔ̀ nɔ ɔ , o ŋɛ ja fó o

(you(sg.) - big - this, you(sg.) - are - tears - weep-ing)

You are too big to cry.

mɔ̀ àgbɔ̀ nɔ ɔ, dʒúkūẽ́ ŋáfíí nɔ gbè ɔ̀

(you(sg.) - big - this, child - tiny - this - beat - you(sg.))

Big though you are, this tiny child beat you.

In the first sentence, the Nominal Clause [mɔ̀ àgbɔ̀ nɔ ɔ] is antecedent ~~apposition~~ to the Nominal Word [o] which is in subject relation to the VP [ŋɛ ja fó o]. In the second sentence, the Nominal Clause is in apposition to the object [ɔ̀].

3.2.233. Series Two pronouns are the only ones that are used in Nominal clauses (2.1.34.). They are also the only ones that are used in the following exclamations of welcome:

mɔ̀ jee! Welcome (to you(sg.))!

(you)sg.) - welcome)

ŋɛ̀ jee! Welcome (to you (pl.))!

(you(pl.) - welcome)

mɛ̀ jee! Tell them they are welcome!

(they - welcome)

3.2.234. Unlike Series One pronouns, Series Two pronouns may colligate with quantifiers (i.e. [sɔ̃́ɔ̃́] etc., 2.12.) or with intensifiers (i.e. [nɪ́ʧɛ] etc., 2.13.); but the resultant NPs colligate again with only the copula [dɜ́ɪ], as in

d h
nɛ̀ sɔ̃́ɔ̃́ dɜ́ɪ nɔ ɔ ʔ Are there so many of you?

(you(pl.) - many - are - this)

d i
mɔ̀ nɪ́ʧɛ dɜ́ɪ ɔ́ kpɔ̃́lɔ You are your own saviour.

(you(sg.) - self - are - your - saviour)

Such NPs may also be Nominal Sentences.

3.3.235. Series Two pronouns are the only pronouns used for enumeration, as in the following NPs which, again, colligate only with the copula; they may, of course, be Nominal Sentences as well (2.1.31.):-

mɔ̀ kɛ lɛ̀ kɛ wɔ̀ You and he and us

d h
mɔ̀ pɑ̀ɑ́ke dɜ́ɪ sɔ̃lɔ ɔ You alone are the blacksmith.

(you(sg.) - alone - are - blacksmith - the)

ɲɛ̀ nɛ̀ ényɔ̀ Two of you

wɔ̀ nɛ̀ ékpɑ̀ Six of us

Of these examples, all but the second are Nominal Sentences.

3.2.24. Series Three:

	Singular	Plural
First Person	mɪ	wɔ
Second Person	ɔ	ɲɛ̀
Third Person	ɛ/a/ɔ	mɛ̀
	ɛ̀/à/ɔ̀	

This is the object pronoun series. The third person singular form depends for its phonetic realization on the final vowel of whichever element of VP structure immediately precedes it. The various possibilities may be tabulated as follows:

Final Vowel	Third Person Singular Pronoun Object
-ɔ	ɔ
-a	à
Any other non-nasalized vowel	ɛ̀
-ɜ	ɜ
-ã	ã
Any other nasalized vowel	ɛ̃

In the following illustrative examples, the relevant elements of VP structure and the accompanying pronoun objects are underlined:

wà tʃɔ ɔ We sent him

(we - sent - him)

but wa ɲɛ ɛ̀ tʃɔ ɔ We are sending him

(we - are - him - send - ing)

wà tʃá à — We cured him

(we - cured - him)

but wa ŋɛ è tʃá a — We are curing him

(we - are - him - cure - ing)

wà dé è — We told him

(we - told - him)

but wa ŋɛ è dé e — We are telling him

(we - are - him - tell - ing)

wà tʃé è — We called him

(we - called - him)

but wa ŋɛ è tʃé ɛ — We are calling him

(we - are - him - call - ing)

wà nã̀ ã̀ — We saw him

(we - saw - him)

but wa ŋɛ è nã̀ ã̀ — We are seeing him

(we - are - him - see - ing)

Because of the very close links between the third person pronoun of this series and the Verbal Piece, it is considered best to treat the whole of Series Three as elements of the structure of the Verbal Piece.

3.2.25. Series Four:

	Singular	Plural
First Person	jée	wà
Second Person	ó	ŋ̀
Third Person	è	à

These are the possessives (see 2.3.22. above) or possessive adjectives which occur first in any NP of whose structure they are elements — i.e. they fill place "a"; all other adjectives are post-Head qualifiers (2.3.3.) and fill place "e". Possessives, on the other hand, are the first of the three pre-Head qualifiers discussed in 2.3.2. above. Their use is exemplified by (place "d" being that of the Nominal Head):-

a d jéc womí	My book
d e womí tʃutʃu	Red book
a d e jée womí tʃutʃu	My red book

This series is grouped with pronouns rather than with adjectives principally because its members feature regularly in reflexive verb constructions. Reflexive verbs in Adangme consist of a transitive verb followed by the word [he] self. In sentences containing a reflexive verb, the subject of the verb may be any Subject N.P. (see 2. 1.33); it is followed by the transitive verb concerned, and then by a member of Pronoun Series Four in person and number concord with the Subject N.P. and finally comes the word [he]. Compare :[2]

	ì píá nɛ̀	I blamed you(pl.)
with	ì píá jée he	I blamed myself

See also

wà píá wà he	We blamed ourselves

---

2. The aorist tense alone will be used to illustrate this point.

è pía è he — He blamed himself

nĩmli ɔmɛ̃ pía à he — The people blamed themselves

nɔ̃mlɔ ɔ pía è he — The person blamed himself

These concordial relationships are among the criteria used in 3.3. below to establish a grammatical category of number.

3.2.3. A few paradigms of the verb [dʒè] to leave will be cited here to illustrate the basis on which the category of person is abstracted. Attention will be focused on the uniformity or otherwise of the intonational pattern(s) that characterize each paradigm.

Paradigm "a"

ì dʒè	I left	wà dʒè	We left
ò dʒè	You (sg.) left	ɲɛ̀ dʒè	You (pl.) left
è dʒè	He/She/It left	à dʒè	They left

Paradigm "b"

mã́ dʒè / í mã dʒè	I shall leave	wà mãã́ dʒè	We shall leave
ò mãã́ dʒè	You (sg.) will leave	ɲɛ̀ mãã́ dʒè	You (pl.) will leave
è mãã́ dʒè	He....will leave	à mãã́ dʒè	They will leave

The two first person singular forms are in free variation.

Paradigm "c"

í ŋɛ dʒè e	I am leaving	wa ŋɛ dʒè e	We are leaving
o ŋɛ dʒè e	You (sg.) are leaving	ɲɛ̀ ŋɛ dʒè e	You (pl.) are leaving

e ŋɛ d3è e He.....is leaving a ŋɛ d3è e They are leaving

Paradigm "d"

i d3è ɔ	I leave	wà d3è ɔ	We leave
ò d3è ɔ	You(sg.) leave	ŋɛ̀ d3è ɔ	You (pl.) leave
è d3è ɔ	He.....leaves	à d3è ɔ	They leave

It will be noted that paradigm "a" has a uniform intonational pattern; in the other three paradigms, however, the first person singular form is in intonational contrast with the rest. This latter situation is typical of the majority of paradigms and serves as the basis of abstracting a two-term category of person, the respective terms being "first person" and "non-first person".

A paradigm that approximates to "Prohibition" is the basis of abstracting further terms of the Category of Person:

mā kó d3è	Don't let me leave	wà kó d3è	Let's not leave
ó kó d3è / kò ó d3è	Don't leave	ŋɛ̀ kó d3è	Don't leave
é kó d3è	Don't let him...leave	á kó d3è	Don't let them leave

The second person singular differs from the rest in having two alternative forms the second of which is restricted to direct speech whilst the first occurs in both direct and indirect speech. Of the others, it will be noticed that the first and second person plural forms stand in intonational contrast to the rest.

3.2.4. Cumulatively, then, this brief review leads to the abstraction of first and second person singular on the one hand and of their plural equivalents on the other. What is left over is, naturally, the third person. The system can be extended to cover all paradigms even though some may exhibit no overt intonational contrast of person.

An interesting feature of these paradigms is that verbs are not inflected either for person or number.

3.2.5. It is worth noting, furthermore, that although the first person generally has extra-linguistic reference to "speaker(s)", the second person to "addressee(s)" and the third person to "all others", the use of pronouns in Adangme extends beyond this and may be compared to the use of the first person singular pronoun in an English utterance such as

I should turn it the other way

where a speaker is really giving advice to one or more addressees, and actually means:

I think you should turn it the other way.

In Adangme, the third person singular and plural forms - and these alone — often have extra-linguistic reference to an addressee, as in the commands:

é nɛ̀ kɔ́ ŋɛ́ ledʒɛ́ ɔ!
(Let him - keep - quiet - at - there)
Keep quiet there! addressed to one person, or

á pè kɔ́ ŋɛ́ ledʒɛ́ ɔ!

(Let them - keep - quiet - at - there)

Keep quiet there! , addressed to more than one person.

Third person pronouns are also used in scornful expressions such as

mǐnǐ e ŋɛ pèé e nɔ ?

(What - he - is - do - ing - this ?)

Shame! Look at what you(sg.) are doing.

addressed to one person, or

mǐnǐ a ŋɛ pèé e nɔ ?

(what - they - are - do - ing - this ?)

Shame! Look at what you (pl.) are doing.

addressed to more than one person.

Finally, the third person plural form represents the impersonal in Adangme, so that although

a ŋɛ ò tʃé ɛ

(they - are - you - call - ing)

could mean

They are calling you,

it most commonly means

You are being called (by one person).

3.3. THE CATEGORY OF NUMBER

3.3.1. The domain of the category of number will be shown below to be the NP taken as an integrated unit. To clarify the discussion of this category, however, it has been found most convenient to relate it to the word classes of which the Simple NP (2.3.) is composed.

The Category of Number has two terms, Singular and Plural, and these are related in the main discussion to the structure of the Simple NP. This discussion is preceded by a review of the general status of this category and is followed by a brief word of conclusion on the operation of this category in Complex and Compound NPs.

The syllable structure of the words of the various word classes discussed here is dealt with in Chapter 5.

3.3.11. In Sentence structure, the category of number is internal to the NP since, as was shown in 3.2. above, verb forms are not inflected for number. Among the major manifestations of number in nouns, adjectives, determinatives and numerals are the inflections for number carried by the respective plural forms, as in the nouns:

gbé	dog	gbéhĭ	dogs
nɜ̃mlɔ	person	nĭmli	persons;

in the adjectives

àgbɔ̀	big.	àgbɔ̀hĭ	big (pl.)
kpɩ̀tí	short	kpɩ̀tíhĭ	short (pl.)

in the determinatives

ko	a certain	komɛ̌	certain (pl.)
nɔ	this	nɔmɛ̌	these

and in the numerals

kpaago	seven	kpaagohĭ	sevens
kákááká	one each	kákáákáhĭ	a few

Another clue to number is a morphological process to which singular adjectives and nouns — and these alone — can be subjected. Any singular adjective or noun is capable of being reduplicated into a SINGULAR word form in which is inserted either [-fɛ̌́ɛ̌-] or [-tʃúáá-], both meaning every, as in

àgbɔ̀	big	àgbɔ̀-fɛ̌́ɛ̌-àgbɔ̀	every big one
nɔ̃	person	nɔ̃̀-fɛ̌́ɛ̌-nɔ̃̀	everybody

The resultant words remain singular in their concords, as shown by

nɔ̃̀-fɛ̌́ɛ̌-nɔ̃̀ píá e he — Everybody blamed himself

(everybody - blamed - his - self)

cp. d3àtá amɛ̌ plàá à he — The lions injured themselves

(lion - the(pl.) - injured - their - self)

where the plural NP [d3àtá amɛ̌] selects the third person plural pronoun [à] in the reflexive verb construction.

3.3.12. Numerals

Almost all numerals may be inflected for number. The only numeral that appears to be restricted to occurring in singular NPs

is [káke] one; it may collocate with any singular nominal with the exception of such class III nouns (3.3.233.) as [nũmeli] palm oil, [ɲũ] water and [ŋmɛnũ] kernel oil.

The rest of numerals are discussed by reference to the sub-classification of nouns below.

. . .

3.3.13. Quantifiers.

Only the quantifier [nɛ̀ɛ́ke] alone is restricted to collocating with singular nominals; the others collocate with any plural nominal and with some singular nominals, as in

nĩmli bàbàóó — A lot of people

(people - many)

ɲũ bɔ̀ɔ́ — A little water

(water - a little)

Quantifiers are not inflected for number.

. . .

3.3.21. Determinatives

Determinatives (2.11.) have singular terms

ɔ , a , ɔ̃ , ã , ko and no

and plural terms

ɔmɛ, amɛ, ɔ̃mɛ̃, ãmɛ̃, komɛ̃ and nɔmɛ̃.

3.3.22. Adjectives

Adjectives (2.9.) form their plurals by suffixing [-hĩ] to the singular form. Two exceptions encountered so far are

[wajó] small with plural form [tʃɔ̀wí];

and [ŋ̀ǎfíī] tiny with plural form [tʃɔ̀wí]

and [ŋ̀ǎfíīhĭ] in free variation, as in:

	womí ŋ̀ǎfíī	tiny book	(singular NP)
	womí ŋ̀ǎfíīhĭ	tiny books	(plural NP)
	womí tʃɔ̀wí	tiny books	(plural NP)
cp.	womí àgbɔ̀	big book	(singular NP)
	womí àgbɔ̀hĭ	big books	(plural NP)

As explained in 3.3.23. below, the number of exponents of plurality — i.e. the number of plural NP elements — to be found in any NP that has a noun as Head depends on the sub-class to which the noun belongs. Compare the last two examples cited above

with	nɔ̃mlɔ àgbɔ̀	big person	(singular NP)
and	nĭmlĭ àgbɔ̀hĭ	big people	(plural NP)

3.3.23. Nouns

Nouns other than Personal ~~Nouns~~ and Place Names (see 2.7.2. and 3.3.23.1(b)) resolve themselves into three major sub-classes on the criteria of their morphology and of the presence or absence of number concord between the nouns concerned and their qualifiers in plural Simple NPs.

Personal and Place Names are commented on briefly in the next sub-section; the main attention of 3.3. as a whole if focused on nouns other than Personal and Place Names.

3.3.231. CLASS I NOUNS

Class I nouns are morphologically sub-divisible into two:-

(a) those that form their plural equivalent by the suffixation of [-hĩ] to the singular form, as in

nũbuɔ	guest	nũbuɔhĩ	guests
hiɔtʃɛ	invalid	hiɔtʃɛhĩ	invalids
tɛ́	stone	tɛ́hĩ	stones
dʒuɔ	thief	dʒuɔhĩ	thieves
hũɛ̃	friend	hũɛ̃hĩ	friends
hɛ̃́wí	twin	hɛ̃́wíhĩ	twins
bí	offspring	bíhĩ	offspring (pl.)

(b) those that form their plural equivalent by the suffixation of [-mɛ̃] to the singular form; as the first three examples show, some nouns belong to both sub-classes:-

hiɔtʃɛ	invalid	hiɔtʃɛmɛ̃	invalids
bí	offspring	bímɛ̃	offspring (pl.)
hũɛ̃	friend	hũɛ̃mɛ̃	friends
tʃɛ	father	tʃɛmɛ̃	fathers
ɲɛ̀ɛ̃	mother	ɲɛ̀mɛ̃	mothers

Most blood relation terms belong to this sub-class. It is worth noting that Personal and Place Names (2.7.2.) may take either the suffix [-hĩ] or the suffix [-mɛ̃], depending on their collocability with numerals.

ì lɛ̀ kòfíhĩ ékpà — I know six people called Kofi

(I - know - Kofis - six)

and kòfímɛ̃ ba — Kofi and the others came

(Kofis - came)

Utterances such as *[kòfímɛ̃ ékpà] do not occur in Adangme.

No such restriction attaches to sub-class I (b) nouns that are not Personal or Place names, hence the separation of Personal and Place Names from other Nouns in this chapter.

Noun Class I, unlike the other two noun classes reviewed below, is an entirely open set and contains by far the majority of nouns in Adangme. Another respect in which noun class I differs from the other two noun classes is the fact that when members of noun Class I occur in plural simple NPs they are usually inflected for number only if no other element of that NP structure is inflected for number; no such restriction operates on members of noun classes II and III. Compare the following:

Class I

hũɛ̃mɛ̃ ékpà	Six friends
hũɛ̃ ɔmɛ̃	The friends

Class II

nĩmli ékpà	Six people
nĩmli ɔmɛ̃	The people

See also the Class I noun [ŋmlɛ̀] in the following plural NPs:

ŋmlɛ̀hĩ	Bells, Clocks
ŋmlɛ̀ àgbòhĩ	Big bells (or clocks)
ŋmlɛ̀ àgbò ɔmɛ̃	The big bells (or clocks)
ŋmlɛ̀ àgbòhĩ ékpà	Six big bells (or clocks)

where each plural NP contains only one plural inflexion (underlined). This is the distinguishing characteristic of Class I nouns: they are not obligatorily inflected for number in plural NPs.

Incidentally, [ŋmlɛ̀] is unique in Adangme in that, when it collocates directly with cardinal numerals [ɛ́ɲɔ̀] two up to and including [ɲɔ̀ŋmɔ́-kɛ-ɛ́ɲɔ̀] twelve, the fact of whether it is inflected for number/or not has lexical significance, as in

ŋmlɛ̀ ɛ́kpà	Six o'clock
ŋmlɛ̀hĩ ɛ́kpà	Six bells (or clocks)
ŋmlɛ̀ ɲɔ̀ŋmɔ́	Ten o'clock
ŋmlɛ̀hĩ ɲɔ̀ŋmɔ́	Ten bells (or clocks)

3.3.232. CLASS II NOUNS

These are obligatorily inflected for number in plural NPs in which they appear; they therefore exhibit concord of number with their qualifiers in such NPs. They are of five morphological sub-classes, some of which are closed sets. Virtually complete lists are provided for those sub-classes that are closed sets.

The five sub-classes are set out below and are followed by a discussion of how the category of number operates in this class of noun.

(a) There is only one noun in this sub-class:

nɔ̃mlɔ person; human being nĩmli persons

(b) Nouns of this sub-class form their plurals by suffixing to the singular form [-wí] alone, or in association with other

changes, as in:

(i) d3úkūž̌ child d3úkūž̌wí children

where the stem is a free morpheme;

(ii) nǐhèjó young man nǐhèwí young men

zā̌ŋmàjó young lady zā̌ŋmàwí young ladies

ŋūmūjó young man ŋūmūwí young men

where the bound singular morpheme [-jó] and the bound plural morpheme [-wí] are suffixed to free morpheme stems; the second stem is subjected to a tonal change from [zā̌ŋmá] bluff to [zā̌ŋmà-];

(iii) nɜ̀mójó old man nǐmówí old men

jòmójó old woman jǐmówí old women

jòjó young lady jǐwí young ladies

where the plural forms share a common final syllable [-wí] associated in each case with a change in their first syllables from a back vowel in the singular forms to a close front vowel in the plural;

(iv) bímɔjó baby bímɔwí babies

which has as its stem the bound morpheme [bímɔ-]. It is the only member of this sub-class.

One interesting feature of sub-class II (b) nouns as a whole is that the plural forms given above are sometimes, so to speak, "pluralized" by the suffixation of [-hǐ], so that utterances such as

d3úkūž̌wí and d3úkūž̌wíhǐ children

ŋūmūwí and ŋūmūwíhǐ young men

are frequently encountered; the first member of such a pair is commoner than the second.

Not all nouns ending in [-jó] belong to this sub-class. For instance, the blood relation noun [jàjó] Mother belongs to Class I and has the alternative plural forms [jàjóhĭ] and [jàjómɛ̃] only the first of which collocates with numerals.

(c) To this sub-class belong all masculine place-of-origin nouns (2.7.31.); examples are:

ðhʊ̀ɛ̀nɔ̀	Ewe man	ðhʊ̀ɛ̀li	Ewe people
àdãã́nɔ̀	Ada man	àdãã́li	Ada people

The only noun encountered which belongs to this sub-class but is not a place-of-origin noun is

wekúnɔ̀ clansman, relative wekúli relatives.

It is to be noted that not all nouns that end in [-li] can be identified with the plural of this sub-class, e.g.

tʃɛli	feather	tʃɛlihĭ	feathers

which belongs to sub-class (a) of Class I.

(d) To this sub-class belong all agentive nouns (2.7.32.), e.g.

sɜ̃lɔ	blacksmith	sɜ̃li	blacksmiths
tʃɜ̀ɜ́lɔ	teacher	tʃɜ̀ɜ́li	teachers
dejalɔ	hunter	dejali	hunters

(e) Nouns of this sub-class have one singular form but have two plural forms in free variation. Examples are (with meanings given for only the plural forms):-

nɔ́	nǐ	nǐhǐ	things
nɔ̀	nì	nìhǐ	persons
sènɔ̀	sènì	sènìhǐ	younger siblings
jɔ̀	jì	jìhǐ	women, wives

From [jɔ̀] are synchronically derived a few nouns which also belong to this sub-class . These are (translations are provided for the plurals only):

jɔ̀hɔ́jɔ̀	jìhɔ́jì	jìhɔ́jìhǐ	pregnant women
jɔ̀fɔ́jɔ̀	jìfɔ́jì	jìfɔ́jìhǐ	nursing mothers
jɔ̀gbajɔ̀	jìgbajì	jìgbajìhǐ	married or marriageable women

where [hɔ́] means pregnancy, [fɔ́] means to give birth to and [gba] means to get married to a man.

To this sub-class also belong all feminine place-of-origin nouns (2.7.31.), examples being:

ɔhǔ̀ǔ̀jɔ̀	Ewe woman	ɔhǔ̀ǔ̀jì, ɔhǔ̀ǔ̀jìhǐ	Ewe women
àdȁ́ȁ́jɔ̀	Ada woman	àdȁ́ȁ́jì, àdȁ́ȁ́jìhǐ	Ada women

As pointed out in 3.3.231. above, Class I nouns are unlike the other two classes of noun in that when the former are Heads of plural NPs there is usually only one exponent of plurality in the NP concerned. Conversely, plural NPs having a Class II or Class III noun as their Head exhibit discontinuous exponents of plurality. This is one of the major considerations that prompted the designation of the NP, considered as an integrated unit, as the domain of the category of number. Here are examples of plural NPs containing

Class II nouns (plural morphemes are underlined):

nĩmli kpákpá amɛ̃ — The good people

(people - good - the (pl.))

nĩmli kpákpáhĩ ékpà amɛ̃ — The six good people

3.3.233. CLASS III NOUNS

Class III nouns are morphologically invariable but each may be considered as a singular or plural noun on account of its concordial relations with other nouns or other NPs when they stand in genitival relationship with it; cf:

ŋo sãne — The matter concerning salt

(salt - matter)

but nĩméli à sãne — The matter concerning (the) ancestors

(ancestors - their - matter)

where [à] is the plural possessive (see 3.2.25.).

Conversely, the test of singularity by reduplication accompanied by the insertion of [-fɛ́ɛ́-] or [-tʃúáá-] can be applied (see 3.3.11.):

ŋòfɛ́ɛ́ŋò — any salt, hence [ŋò] is singular

But *nĩméli-fɛ́ɛ́-nĩméli does not occur in Adangme, hence [nĩméli] is plural.

By these two tests, [nĩméli] alone turns out to be plural; all other Class III nouns are singular. Only the following have been isolated so far, but there may well be a few others:-

ŋò	salt	òmɔ́	rice	mɔ́dé	attempt
dèŋmé	tail	bɔ́	dew	ŋɖ̀	water

nūmeli	palm oil	ŋmenū	kernel oil	dʒehǎ	year
sī	time(s)	bɔ̀fó	corn	ji	head
hìɔ̀mì	rain	nīhè	showing off (of males)		
jɛ	yam	jìhè	showing off (of females)		

3.3.3. PLURALITY IN COMPLEX NPS

When two NPs stand in genitival relation (see 2.2.13.), the "possessor" NP precedes the "possessed" NP; plurality in the former is marked as well by plural inflections that may be carried by its component words as by the selection of a plural possessive to fill the initial place — i.e. place "a", see 2.3. — in the "possessed" NP.

Thus

d g
gbé ɔmɛ̃ The dogs

is considered a plural NP because it contains the plural deictic [ɔmɛ̃], and also because in

d g a d
gbé ɔmɛ̃ à túé The dogs' ears

(dogs - the(pl.) - their ear)

it is a "possessor" NP that selects the plural possessive [à] in the "possessed" NP.

Compare

d a d
wɔ̀ nīmli wà túé The human ear

(we - humans - our ear)

where again the first NP contains two plural words and also selects a

plural possessive [wà] in person and number concord with the first NP to fill place "a" in the second NP. Note that the two words in the first NP are in appositional relationship since

wɔ̀ dɔ́ nīmli We are human beings

is an Adangme utterance; see 2.2.13. where other examples of appositional and genitival relationship are discussed in detail.

The examples quoted above briefly illustrate the operation of the category of number in Complex NPs. The following examples serve to point out that the singular-plural distinction runs parallel to the Simple NP-Complex NP distinction.

d g
gbé ɔ The dog is a Singular Simple NP;

d g
gbé ɔmɛ̃ The dogs is a Plural Simple NP;

d g e
gbé ɔ túé The dog's ear is a Singular Complex NP;

and

d g a d
gbé ɔmɛ̃ à túé The dogs' ears is a Plural Complex NP.

The next sub-section shows that the number distinction applies to compound NPs as well.

3.3.4. PLURALITY IN COMPOUND NPS

The defining characteristic of compound NPs was stated in 2.2.12. as the presence between two or more Simple or Complex NPs of the additive conjunction [kɛ] and or of either of the two alternating conjunctions [lɛ́ɛ́] or [àlɛ́ɛ́] both of which mean or. Statements made above about the internal and external clues to

plurality in Simple and Complex NPs hold good when these NPs operate in Compound NP structure, hence no further comments are needed at this stage on compound NPs consisting of two or more plural NPs, such as

tʃɛmɛ̃ kɛ ɲɛ̀mɛ̃ à bumĩ Respect given to fathers and mothers

(fathers - and - mothers - their respect)

and tʃɛmɛ̃ lóó ɲɛ̀mɛ̃ à bumĩ Respect given to fathers or to mothers

(fathers - or - mothers - their - respect)

Both of these are plural compound NPs.

3.3.41. What must be given some attention now are some other possible compound NP sub-types, namely those that comprise one or more plural NPs and one or more singular NPs on the one hand, and, on the other hand, those that comprise a number of singular NPs. These two sub-types of Compound NP are discussed in turn below; the discussion calls for an emphasis on the difference between the two types of conjunction: the additive one and the alternating ones.

3.3.411. Compound NPs comprising one or more plural NPs and one or more singular NPs.

(i) When these are linked by the additive conjunction [kɛ], the compound NPs so formed are always plural, irrespective of the order in which the component singular and plural NPs appear, as in

tʃɛ kɛ è bímɛ̃ à he sãne

(father - and - his - children - their - self - matter)

A matter concerning a father and his children

and bímɛ̃ kɛ à tʃɛ à he sãne

(children - and - their - father - their - self - matter)

A matter concerning children and their father

Here, the respective compound NPs namely [tʃɛ kɛ e bímɛ̃] and [bímɛ̃ kɛ à tʃɛ] are considered to be plural because each selects the plural possessive [à] in the "possessed" Simple NP [à he sãne]. It is to be noted, in addition, that the first compound NP comprises a singular Simple NP [tʃɛ] followed by a plural Simple NP [kɛ è bímɛ̃], whereas the second compound NP consists of a plural simple NP [bímɛ̃] followed by a singular simple NP [kɛ à tʃɛ], but that this does not affect their equal status as plural compound NPs.

(ii) When the component NPs of a compound NP of this sub-type are linked by the alternating conjunction [lóó] or [àlóó], the singularity or plurality in the concords of the resultant compound NP depends on whether the last component NP is singular or plural. Thus

tʃɛ lóó è bímɛ̃ à he sãne

(father - or - his - children - their - self - matter)

A matter concerning a father or his children

is a plural compound NP since the plural possessive [à] is selected in the "possessed" NP, whilst in

bímɛ̃ lóó à tʃɛ he sãne

(children - or - their - father - self - matter)

A matter concerning children or their father

the fact that no possessive — much less a plural one — is selected in the "possessed" simple NP [he sãne] indicates that the preceding Compound NP is singular in its concords. (Cp. the last two examples of 3.3.3.

gbé ɔ túé The dog's ear, a singular Complex NP

and gbé ɔmɛ̃ a túé The dogs' ears, a plural Complex NP.)

Note, again, the reversal of the order of the component singular and plural NPs of the respective compound NPs just discussed.

It is clear therefore that the order in which component singular and plural NPs appear is crucial when the compound NP concerned contains an alternating conjunction, and that not all such compound NPs are plural in their concords. The second observation applies as well to the next sub-type of compound NP as well.

3.3.412. Compound NPs comprising one or more singular NPs

(i) These are plural if they are linked by [kɛ], as in

há kɛ jɛ à he dʒua. The cost of a knife and of yams

(knife - and - yams - their - cost)

há kɛ jɛ kɛ ɔmɛ̃́ à he dʒua The cost of a knife and of yams and rice

(knife - and - yam - and - rice - their - cost)

cf. the selection of the plural possessive [à] in the final simple NP of each.

(ii) Such compound NPs are singular when they are linked by [lɔ́ɔ́] or by [àlɔ́ɔ́], as in

há lɔ́ɔ́ jɛ́ he dʒua — The cost of a knife or of yams

(knife - or - yam - cost)

há àlɔ́ɔ́ jɛ́ àlɔ́ɔ́ ɔ̀mʒ́ he dʒua — The cost of a knife or of yams or of rice

(knife - or - yam - or - rice - cost)

Singularity or plurality in such compound NPs depends, therefore, entirely on the kind of conjunction which appears in them.

It is not proposed to discuss compound NPs incorporating both additive and alternating conjunctions in this thesis.

3.3.42. The operation of the category of number with regard to the three major NP types may therefore be schematized as follows:-

	Simple NP	Complex NP	Compound NP
Singular Number	×	×	×
Plural Number	×	×	×

4. THE VOWEL AND CONSONANT SOUNDS OF ADANGME

4.1. ADANGME VOWELS

There are twelve vowels in Adangme, seven oral and five nasalized. They are all voiced. The oral vowels occur immediately after oral as well as after nasal consonants; the nasalized ones occur immediately after nasal consonants and after oral consonants except [j] and [ɜ]. Nasality in Adangme vowels does not therefore depend on the presence of a contiguous nasal consonant. Furthermore, Adangme nasalized vowels are not always "nasalized equivalents" (Cf. Puplampu, 1952, p.6.) of the oral vowels that are articulatorily nearest to them. As the data presented and discussed below will show, they differ in some cases from the nearest oral vowels in that they have narrower jaw openings and closer tongue positions than do the oral vowels concerned. This articulatory phonetic difference between oral vowels and the nasalized vowels nearest to them is paralleled, in phonemic terms, by the following minimal pairs:

sí	to pound	sɪ́	to leave
sɛ́	the Shai division	sɛ̃́	seat
sà	to sieve	sɑ̀	to burn
sɔ̀	to catch hold of	sɔ̃̀	to forge metal
su	to kindle	sũ	to court

This treatment differs from Berry (1950) and Kropp (1964), but coincides with Berry (1952).

Puplampu's (1953) treatment of Adangme vowels is different and somewhat unusual. He says there are seven vowel symbols (p.72) or

letters (p. 80) — these seven he indicates on his vowel chart — and that if we consider nasality, length and tone as independent variables, these seven vowel letters would yield "73 different sounds each imparting a different meaning" (p.80). Such a claim is highly questionable. Continuing, he calls these 73 sounds "values"; but his definition of value as "a particular quality that results from the shape of the mouth and position of the tongue" (p. 72) clearly falls short of his use of the term since it takes account, at best, of only one (i.e. nasality) of his three independent variables. On the whole, one is at a loss to determine in what relation Puplampu's "letter" stands to the more usual term "phoneme", and one wonders whether "letter" here in any way corresponds to the litera - derived "letter" discussed by Abercrombie (1965).[1]

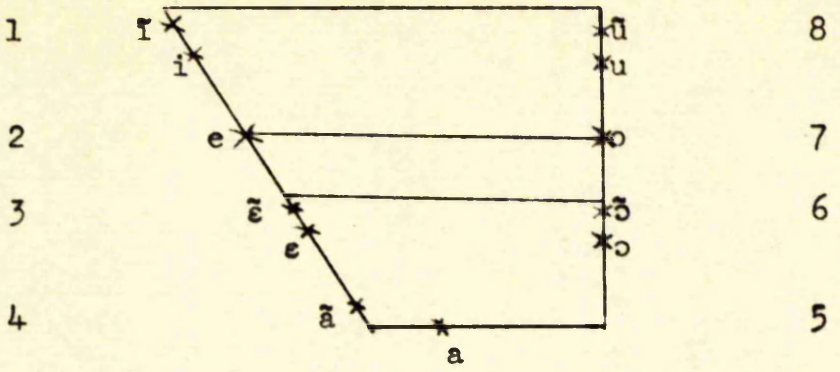
In the discussion that follows, the vowel sounds of Adangme are described in turn; the description is based on kinaesthetic evidence as well as on data obtained from examining palatograms, spectrograms and kymograms. Some use was also made of close-up cine photographs in the study of the relations of nasalized vowels to the oral vowels articulatorily nearest to them, but it has not been possible to include any of these in the thesis.

Unless otherwise stated, the examples used for the various instrumental data were uttered in the unemphatic style. The illustrative examples with which the description of each vowel ends were so selected as to show how freely both oral and nasalized vowels occur immediately after both oral and nasal consonants.

All the Adangme vowels are of the Primary (as opposed to the

1. pp. 76-85, especially p. 81.

Secondary) series and are assigned the following positions on the Cardinal Vowel Chart:-



On this chart, I have indicated five more vowel positions than does Puplampu (1953). My symbolization differs from Berry's (1952) in that I use [ɛ̃] and [ɔ̃] for his half-open vowels [ẽ] and [õ].

A few comments on the spectrographic material would be appropriate here. First, frequency values used until very recently to be denoted in the literature of acoustic phonetics by the symbol ~ or by the abbreviation cps. meaning "cycles per second". These have now been replaced by the abbreviation "Hz" which refers to Hertz, the first scientist to work on electro-magnetic radiation. Hz. is accordingly used throughout the thesis. Secondly, the usual practice of idealizing speech sounds for spectrographic study has been followed in the study of the vowels (though not in the case of the consonants). This practice is subject to a limitation which applies as well to the allocation of positions on the vowel chart to the vowels of any language, namely that when these vowels occur in ordinary speech they would do no more than approximate the values attributed to them in their idealized form.

Each vowel was pronounced in sustained form after the aspirate (which really amounts to a voiceless equivalent of the vowel immediately following it, see 4.2.67. below) and from the recording thus obtained a broad band spectrogram and a narrow band integrated section were made for each of the twelve vowels. (The duration of the sample for each integrated section is indicated in each case). These two are the basic data provided for the description of each vowel.

However, the procedure of using amplitude sections is not foolproof since, as is well known, the peaks of amplitude of a voiced sound can quite easily co-incide with an anti-resonance or trough in the analysing system, thus "shifting" the peak on the spectrum. This appears to have happened in the F1 of sgm 4 for [hɛ̃:], 4.1.4. As a check against this danger, additional studies were made of each vowel with a view to eliminating the influence of any one fundamental in the sample selected for the respective integrated sections. For this purpose, each vowel was uttered:

(a) with rising pitch;

(b) with falling pitch; and

(c) without voicing.

Narrow band integrated sections were made of these. By way of illustration, only those obtained for the vowels [ɪ̃] and [i] in the three additional forms are provided below. Differences in the positions of the peaks of amplitude on these different spectra will be discussed below; they underline the well-known fact that the relation of vowel quality to the vowel spectrum depends in each case not on the absolute

positions of the peaks but rather on their inter-relations.

The study of a set of speech sounds under varying conditions has the great advantage of providing a check against misleading results. A case in point, referred to above, are the spectra on sgm 4 for [hɛ̃] and on sgm 5 for [hɛ:] in which the F1 of the former appears unusually low at 200 Hz. In this case, the integrated sections of the two vowels uttered with rising pitch were referred to and are included below under the description of the vowels concerned: these conclusively show that this spurious F1 at 200 Hz must have been caused by hum in the spectrograph and that the true F1 of [ɛ̃] is at 550 Hz; it was probably masked by an anti-resonance on the former amplitude section.

No F2-F1 chart is provided. This is because it is now generally realized that vowel quality depends on much more than F1 and F2[2] and that any correspondence observed between such a chart and one based on kinaesthetic evidence is purely co-incidental. F1 to F4 values are given for each vowel instead.

A brief study was also made of the effect of changes of pitch on vowel quality. This is illustrated by sgms 17 to 19 for [sé], [sɛ̃] and [àgbɛ̀é] respectively which are discussed in 4.1.3. below.

For the palatograms each vowel was placed after a bilabial consonant; since bilabial consonants give no wipe on the palate, whatever wipes appear on the palatograms provided for the vowel

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2. On the crucial role of F3 in Danish vowels, see Fischer-Jørgensen (1958) p. 447.

articulations can be attributed to the vowels alone. For the physiological correlates of the palatogram zones, see Firth (1948)$_a$ facing p. 860.

Below is a description of the vowels of Adangme. A discussion of the circumstances under which [ĩ] is elided is provided after the description of [m] in 4.2.311, and a general statement about what happens to vowel sequences in intra-word and inter-word positions is provided in 4.1.14.

4.1.1. [ĩ] is a close front vowel with a tongue position that is slightly more open than that of Primary Cardinal Vowel Number One. It is nasalized and is pronounced with spread lips and with voicing.

Pgm 1 for [mí] shows wide wipes in the left and right zones. These extend as far forward as the Canine Line on the left and the first Pre-Molar on the right. The wipe in the right zone touches the median line in numbered zone 6, but the wipe in the left zone does not touch the median line.

Kgm 1 for [mí] with simultaneous N and M tracings shows that there are regular wave forms on the N tracing for the whole word, indicating the presence of nasality on both sounds. The release of the bilabial closure for [m] at Y is accompanied on the M tracing by the onset of regular wave forms; in conjunction with the N tracing, these show that for the vowel [ĩ] there is oral as well as nasal egress of pulmonic air.

On sgm 1 for [hĩ:], the only formants that appear in the wide band picture are at 200 Hz, 3000 Hz, and at 6700 Hz. On the narrow

band integrated section with a sample approximately 88 cs long, the first four peaks of amplitude appear at 200 Hz, 2600 Hz, 3100 Hz, and 3300 Hz. The fact that this integrated section provides a more reliable representation of the formant positions of this vowel is confirmed by the figures obtained from the study of this vowel under other conditions, as tabulated below; the duration of each sample appears in brackets.

	F1	F2	F3	F4
Sgm 1a(i) , with Rising Pitch (92cs)	400 Hz	2450 Hz	3250 Hz	3750 Hz
" " (ii), with Falling Pitch (33cs)	200 Hz	2500 Hz	4000 Hz	?
" " (iii),without voicing (54cs)	200 Hz	2400 Hz	3500 Hz	?

The differences in the formant frequency values in the five sets of figures shows that the quality of [ɪ̃] is attributable not to the absolute positions of each formant on the frequency scale but rather to the inter-relations of the formants.

[ɪ̃] may therefore be briefly described as a close front nasalized unrounded vowel, and is illustrated by [mɪ̃́] drum and [gbɪ̃̀] voice or language.

4.1.2. [i] is a close front vowel that is pronounced with spread lips. The position of the tongue is slightly more open than that described for [ɪ̃] above, and the soft palate is raised. [i] articulations are voiced.

Pgm 2 for [bí] offspring shows that there are wide wipes in the left and right zones and that these extend as far forward as the Lateral Incisor Line on the left and the Canine Line on the right.

The wipe on the left touches the left median line in numbered zone 4, and the wipe on the right touches the right median line in numbered zones 5 and 6.

Kgm 2 for [mí] marbles (a game) with simultaneous N and M tracings shows that the regular wave forms on the N tracing suddenly diminish at X which, as the M tracing shows, marks the release of the bilabial closure for [m]. [i] is therefore an oral vowel.

On sgm 2 for [hi:] the first four formants appear in the wide band picture respectively at 200 Hz, 2250 Hz, 3000 Hz and 6000 Hz. A somewhat more reliable representation of F4 appears on the narrow band integrated section (duration, 110 cs) where F1 to F4 appear at 350 Hz, 2350 Hz, 3250 Hz and 3400 Hz. The latter figures compare favourably with figures taken from the following additional spectra:-

	F1	F2	F3	F4
Sgm 2a(i), with Rising Pitch (116cs)	200 Hz	2400Hz	3400Hz	3900Hz
" " (ii), with Falling Pitch (25cs)	350 Hz	2250Hz	3300Hz	3420Hz
" "(iii), without voicing (75cs)	300Hz	1750Hz	3420Hz	4000Hz

A comparison of these figures with those given for [ɪ] above seems to indicate that the two vowels are nearly equally close articulatorily. Perceptually, however, the latter sounds more open in most words.

The spectra for the voiceless vowels [ɪ] and [i] show that, contrary to the findings of Lehiste (1964, pp. 153, 176) the shift-up of formants caused by the absence of voicing occurs more consistently in the higher formants than in the lower ones.

[i] may therefore be briefly described as a fairly close front oral unrounded vowel, and is illustrated by [bɪ̀] offspring and by the second syllable of [ŋmɪ̀ŋmɪ̀] consternation.

4.1.3. [e] is a half-close front vowel that is pronounced with spread lips. The soft palate is raised, and the position of the tongue is approximately that of Primary Cardinal Vowel Number Two. [e] articulations are voiced.

Pgm 2 for [bè] time shows that there are narrow wipes in the left and right zones, and that these extend as far forward as the Canine Line on the left and the First Pre-Molar on the right.

Kgm 3 for [we] house with simultaneous N and M tracings shows that, for the duration of the word, there are faint wave-forms on the N tracing (due to bone-conduction during the articulation of voiced non-nasal sounds) and regular wave forms on the M tracing. These features indicate that both sounds are voiced and have no nasal resonance.

On sgm 3 for [he:], the first four formants appear in the wide band picture at 300 Hz, 2450 Hz, 2750 Hz and 3400 Hz. These bear a fairly striking correspondence to the narrow band integrated section for the same word, with a sample 109 cs long on which the first four peaks of amplitude appear at 400 Hz, 2350 Hz, 2800 Hz and 3350 Hz. The F1 and F2 positions of [e] show that it is a much more open vowel than [ɪ̀] and [i].

The comments to be offered now on the effect of a change of

pitch on the formants of [e] are extremely tentative, since the subject warrants much greater attention than could conveniently be given to it in the present thesis. [e] does appear to have a closer position when uttered with high pitch than when it is uttered with low pitch, cf.

	F1	F2	F3	F4
Sgm 17, sé	500 Hz	3000 Hz	3750 Hz	4000 Hz
Sgm 18, sé	500 Hz	2900 Hz	3500 Hz	5250 Hz(?)

On sgm 19 for [àgbèé], however, there appears to be no corresponding differences in formants.

[e] may therefore be briefly described as a half-close front oral unrounded vowel, and is illustrated by [sè] back and [nĩne] hand.

. . .

4.1.4. [ɛ̃] is a half-open front vowel that is pronounced with spread lips and lowered soft palate. The position of the tongue is slightly more open than that of Primary Cardinal Vowel Number Three. [ɛ̃] articulations are voiced.

Pgm 4 for [mɛ̀ɛ̃] they shows that there are narrow wipes in the left and right zones and that these extend as far forward as the First Molar Line on the left and the Second Pre-Molar on the right.

Kgm 4 for [sɛ́ɛ̃] with simultaneous N and M tracings shows that there is an upward displacement at Y on the M tracing and that regular wave forms begin on both the N and M tracings at Z. The displacement corresponds to the sibilant articulation, and the wave

forms to the articulation of the nasalized vowel [ɛ̃].

On sgm 4 for [hɛ̃:], the first four formants in the wide band picture appear at 200 Hz, 2000 Hz, 2750 Hz and 3500 Hz. The corresponding peaks of amplitude on the narrow band integrated section (duration, 79 cs) appear at 200 Hz, 2200 Hz, 2750 Hz and 3420 Hz. The formant at 200 Hz must have been caused by hum in the spectrograph and the F1 on the section was almost certainly masked by an anti-resonance.

The section on sgm 4a (duration, 93 cs) made with a rising pitch on [ɛ̃], has peaks of amplitude at 550 Hz, 1950 Hz, 3000 Hz and 3850 Hz. F1 here is nearer the expected figure for a half-open front vowel.

[ɛ̃] may therefore be briefly described as a half-open front nasalised unrounded vowel, and is illustrated by [sɛ́̃] <u>seat</u> and [mɛ̀̃] <u>they</u> (emphatic).

4.1.5. [ɛ] is a half-open front vowel that is pronounced with spread lips and raised soft palate. The position of the tongue is slightly more open than that described for [ɛ̃] above. [ɛ] articulations are voiced.

Pgm 5 for [bɛ́] shows that there are narrow wipes in the left and right zones. They extend as far forward as the First Molar Line on the left and the First Molar on the right.

Kgm 5 for [sɛ́] <u>Shai</u> with simultaneous N and M tracings shows

that, on the M tracing, there is an upward displacement at A corresponding to the sibilant articulation and that regular wave forms begin at B. Corresponding to the latter on the N tracing are faint wave forms caused by bone conduction. These features indicate that [ɛ] is a non-nasalized voiced vowel.

On sgm 5 for [hɛ:], the first four formants appear in the wide band picture at 500 Hz, 2200 Hz, 2750Hz and 3750 Hz. The corresponding peaks of amplitude on the narrow band section with an integrated time constant of 79 cs ~~are all lower,~~ appear at 550 Hz, 1950 Hz, 2750 Hz and 3500 Hz.

On sgm 5a for [ɛ] uttered with a rising pitch, the peaks of amplitude on the narrow band integrated section (duration 59cs) are at 650 Hz, 2150 Hz, 2800 Hz and 3950 Hz.

These figures are again ~~on the whole lower than~~ different from the first set cited; they underline the fact of the dependence of vowel quality on inter-relations of formants rather than on absolute formant values.

[ɛ] may therefore be briefly described as a half-open front oral unrounded vowel, and is illustrated by [bɛ́] broom and [ŋɛ́jɔ̀] broken pot.

. . .

4.1.6. [ã] is an open front vowel that is pronounced with neutrally open lips and with a lowered soft palate. The position

of the tongue is slightly more close than that of Primary Cardinal Vowel Number Four. [ã] articulations are voiced.

[ã] gives no wipe on the palate.

Kgm 6 for [tà] with simultaneous N and M tracings shows that after the release of the closure for [t] and a brief period of aspiration, regular wave forms begin on both the N and M tracings at X, indicating that [ã] is nasalized. This observation is confirmed by Kgm 7 for [nà], also with simultaneous N and M tracings, where the release of the alveolar contact for [n] at Y on the M tracing is preceded and followed on the N tracing by regular wave forms which are indicative of sounds with a nasal resonance.

On sgm 6 for [hã:] F1 to F4 appear at 750 Hz, 1250 Hz, 2900 Hz and 3400 Hz. And on the narrow band integrated section (duration 88 cs) they appear at 700 Hz, 1300 Hz, 2900 Hz and 3400 Hz. The F2 positions show that [ã] is a much more open vowel than [ɛ̃] and [ɛ].

[ã] may therefore be briefly described as an open front nasalized unrounded vowel, and is illustrated by [nà] cow and [tà] palm-tree.

4.1.7. [a] is an open front vowel that is pronounced with a raised soft palate and with neutrally open lips (the lip opening being wider than for [ã].). The position of the tongue is slightly retracted from that of Primary Cardinal Vowel Number Four. [a] articulations are voiced.

[a] gives no wipe on the palate.

Kgm 9 for [gbà] with simultaneous N and M tracings shows that

the release of the labial velar contact for [gb] at Z on the M tracing is preceded and followed on the N tracing by faint wave forms that indicate that both sounds are voiced and non-nasalized. This observation is confirmed by kgm 10 for [nà] also with simultaneous N and M tracings where the release of the alveolar contact for [n] at Z on the M tracing is preceded on the N tracing by regular wave forms that die out at about this point. This shows that [a] is non-nasalized. On kgm 8 for [ta] war also with simultaneous N and M tracings, the release of the interdental contact for [t] at Q is followed on the N tracing by faint wave forms that again indicate that [a] is voiced and non-nasalized. These faint wave forms stand in sharp contrast to those observed on the N tracing of Kgm 6 for [tà].

On sgm 7 for [ha:], the first four formants appear in the wide band picture at 800 Hz, 1250 Hz, 2250 Hz and 3250 Hz, and on the corresponding peaks of amplitude on the narrow band integrated section (duration 64 cs) at 900 Hz, 1550 Hz, 2450 Hz and 3200 Hz. This appears to be the vowel with the highest F1 position and, not surprisingly, it turns out to be articulatorily the most open of the 12 Adangme vowels.

[a] may therefore be briefly described as an open front oral unrounded vowel, and is illustrated by [nà] Narh, "a personal name" and [gbà] shed.

4.1.8. [ɔ] is a half-open back vowel that is pronounced with a raised soft palate and open-rounded lips. The position of the tongue is considerably more open than that of Primary Cardinal Vowel Number Six. [ɔ] articulations are voiced.

[ɔ] articulations give no wipe on the palate.

On kgm 11 for [àkɔ́dú] with simultaneous N and M tracings, the release of [-k-] at Q is followed by a brief period of aspiration and the [ɔ] articulation corresponds roughly to segment R-S which is characterized on the N tracing by the faint wave forms already attributed to bone conduction. The difference between these and "true" nasality is clearly exhibited by segment V-W on the N tracing which corresponds to the nasalized [-ũ] articulation.

The observation regarding the non-nasality of [ɔ] is borne out by kgm 12 for [kɔ̀] taboo with simultaneous N and M tracings where the onset of the [ɔ] articulation at B is marked on the N tracing by faint wave forms.

On sgm 8 for [hɔ:], the first four formants appear in the wide band picture at 750 Hz, 1000 Hz, 2700 Hz and 3250 Hz, and, on the corresponding narrow band amplitude section (duration 50 cs), the peaks of amplitude appear at 700 Hz, 900 Hz, 2500 Hz and 3050 Hz. They are all lower in height on the section.

[ɔ] may therefore be briefly described as a half-open back oral rounded vowel, and is illustrated by [àkɔ̀dú] banana and the second syllable of [mɔ̀mɔ̀] flower.

4.1.9. [ɜ̀] is a half-open back vowel that is pronounced with lowered soft palate and open-rounded lips. The position of the tongue is slightly more close than that described for [ɔ] above. [ɜ̀] articulations are voiced.

[ɜ̀] gives no wipe on the palate.

A comparison of kgm 12 for [kɜ̀] discussed above with kgm 13 for [kɜ̀], both with simultaneous N and M tracings, shows that there is a marked difference in the amplitude of the wave forms on the N tracing, beginning respectively at B and A. The prominent wave forms beginning at A on the N tracing of kgm 13 show that the [ɜ̀] articulation is nasalized.

This observation is borne out by kgm 14 for [mɜ̀mɜ̀] with simultaneous N and M tracings where the segment Z-A, corresponding to the [-ɜ̀-] articulation, has wave forms on both tracings whilst the segment B-Y corresponding to the [-ɔ] articulation has wave forms only on the M tracing.

On sgm 9 for [hɜ̀:], the first four formants appear in the wide band picture at 200 Hz, 900 Hz, 1400 Hz and 2900 Hz and on the accompanying narrow band integrated section (duration 74 cs) the corresponding peaks of amplitude appear at 200 Hz, 900 Hz, 1400 Hz and 2900 Hz. The very low F1 values show that [ɜ̀] has a closer tongue position than does [ɔ]; ~~F1 on the section appears to have been masked again~~.

[ɜ̀] may therefore be briefly described as a half-open back nasalized rounded vowel, and is illustrated by [kɜ̀] <u>blow</u> and the the first syllable of [mɜ̀mɔ] <u>flower</u>.

4.1.10. [o] is a half-close back vowel that is pronounced with a raised soft palate and with close-rounded lips. The position of the tongue is approximately that of Primary Cardinal Vowel Number Seven. [o] articulations are voiced.

[o] gives no wipe on the palate.

On kgm 23 for [ɔ̀pè] "a personal name", with simultaneous L and M tracings, X marks the closure for the [p] articulation and is preceded on both tracings by regular wave forms which indicate that [o] is voiced. Kgm 15 for [jɔ̀] woman with simultaneous N and M tracings shows that there are faint wave forms on the N tracing for the whole word; both sounds are therefore without a nasal resonance.

On sgm 10 for [ho:], the wide band picture shows the following positions for F1 to F4; 400 Hz, 900 Hz, 2700 Hz and 3250 Hz, the last two being very faint. The corresponding peaks of amplitude appear on the narrow band integrated section (duration 63 cs) at 400 Hz, 850 Hz, 2500 Hz and 3100 Hz.

[o] may therefore be briefly described as a half-close back oral roumded vowel, and is illustrated by [jɔ̀] woman and [ŋɔ̀] salt.

4.1.11. [u] is a close back vowel that is pronounced with a raised soft palate and with close-rounded lips. The position of the tongue is considerably lower than that of Primary Cardinal Vowel Number Eight. [u] articulations are voiced.

Pgm 6 for [mú] dirt shows that there are small wipes in the

left and right zones. These are above the Third Molar Line on the left and above the Second Molar on the right, and are virtually bisected by the Fourth Molar Line. A direct palatogram, regrettably unavailable, would doubtless have shown a big wipe along the front of the soft palate.

Kgm 17 for [buɲukú] with simultaneous N and M tracings shows that only the segment Q-R bears prominent wave forms on the N tracing. As the M tracing shows, this segment encompasses the end of the first [-u-], the onset of the [ɲ] articulation and the release of the contact for this consonant. These features indicate that [u] articulations may have a tinge of nasality when they occur next to nasal consonants but that, as the tracings corresponding to the other two [u] sounds show, [u] articulations are generally non-nasalized.

On sgm 11 for [hu:], the first four formants appear at 200 Hz, 750 Hz, 2250 Hz and 2750 Hz in the wide band picture, the latter two being very faint. On the corresponding narrow band integrated section (duration 122 cs) the first four peaks of amplitude are at 200 Hz, 350 Hz, 850 Hz and 2300 Hz. As the figures for sgm 12 below show, [u] and [ũ] are nearly equally close vowels. But the former does have a tendency, as indeed it does in many languages, to occur with a more open tongue position, than these figures would lead one to expect. For instance the word [lúsû] candle has been heard by the present writer to occur with much more open [u] sounds than one used in this experiment.

[u] may therefore be briefly described as a close back oral

rounded vowel; it is illustrated by [buɲukú] dust.

. . .

4.1.12. [ũ] is a close back vowel that is pronounced with close-rounded lips and lowered soft palate. The position of the tongue is slightly more open than that of Primary Cardinal Vowel Number Eight. [ũ] articulations are voiced.

[ũ] gives no wipe on the palate.

Kgm 19 for [àn̂ũ̀] with simultaneous N and M tracings shows that, on the N tracing, there are faint wave forms up to point Q and prominent wave forms for the rest of the word. As the M tracing shows, Q marks the closure for the first [n], hence [a-] is the only non-nasalized sound in the word. The nasality of [ũ] is confirmed by kgm 18 for [tʃũ] also with simultaneous N and M tracings where the onset of the vocalic articulation at R is marked on both tracings by regular wave forms.

On sgm 12 for [hũ:], the first four formants in the wide band picture appear at 200 Hz, 2400 Hz, 3100 Hz, and 5750 Hz. On the corresponding narrow band integrated section (duration 122 cs), the first four peaks of amplitude are at 200 Hz, 350 Hz, 2100 Hz and 3000 Hz. It would appear therefore that in the wide band picture F1 and F2 are conflated in the lower frequency region, a fact clearly borne out by the amplitude section.

[ũ] may therefore be briefly described as a close back nasalised rounded vowel, and is illustrated by [àn̂ũ̀] fly and [tʃũ] building.

4.1.13. Summary of F1 to F4 positions for sustained vowels in the environment [hv:], collected from narrow band time-integrated amplitude sections.

Utterance	F1	F2	F3	F4
hɪ:	200 Hz	2600 Hz	3100 Hz	3300 Hz
hi:	350 Hz	2350 Hz	3250 Hz	3400 Hz
he:	400 Hz	2350 Hz	2800 Hz	3350 Hz
hɛ̆:	200 Hz (?)	2200 Hz	2750 Hz	3420 Hz
hɛ:	550 Hz	1950 Hz	2750 Hz	3500 Hz
hæ:	700 Hz	1300 Hz	2900 Hz	3400 Hz
ha:	900 Hz	1550 Hz	2450 Hz	3200 Hz
hɔ:	700 Hz	900 Hz	2500 Hz	3050 Hz
hɜ:	200 Hz (?)	900 Hz	1400 Hz	2900 Hz
ho:	400 Hz	850 Hz	2500 Hz	3100 Hz
hu:	200 Hz	350 Hz	850 Hz (?)	2300 Hz
hʊ:	200 Hz	350 Hz	2100 Hz	3000 Hz

4.1.14. VOWEL SEQUENCES

This subject is dealt with in two parts, first those vowel sequences that occur within words (i.e. intra-word vowel sequences) and secondly those that occur at word junctions (i.e. inter-word vowel sequences). Apart from the obvious grammatical distinction between the two, there are several phonetic and phonological reasons for this dichotomy, among which may be mentioned the fact that different sets of vowels are involved in the one case as opposed to the other (consequent upon the restriction on which vowels may occur word initially, see 5.1.), and also the fact that the glottal prosody is applicable to the latter but not to the former (see 5.4.23).

4.1.141. INTRA-WORD VOWEL SEQUENCES

In single words, what is perceived as a "long" vowel is better treated as a sequence of two occurrences of the same vowel, each of which can, in fact, carry distinctive tone. A succession of dissimilar vowels is likewise treated here not as diphthong as do Puplampu (1953) and Kropp (1964), but as two distinct vowels belonging to different syllables; Berry (1957) has the same view. Where two such vowels occur with different (phonetic) pitches[3] they are heard as nearly equally prominent even in fast speech; but where they occur with the same pitch this sensation of equal prominence tends to be obscured, especially in fast speech. A few

3. Following Carnochan (1964, p. 398), pitch is used here for phonetic noises and tone for phonological abstractions made therefrom.

spectrograms will be used to illustrate this.

Segment A-B of Sgm 13 for

[è bìɛ́ pè kòfí] He is more foolish than Kofi

and segment C-D of sgm 14 for

[è bíɛ́ dzí kòfí] His name is Kofi

roughly correspond to the words [bìɛ́] and [bíɛ́] respectively. A comparison of the amplitude displays of these words uttered in non-pausal position shows that there is fairly uniform amplitude for both words. There is therefore no significant change of prominence on the basis of which one could describe the one word as containing a succession of two vowels and the other as containing a diphthong.

Again, a comparison of segment Q-R of sgm 15 for

[è nɑ̀ hío pɛ́] He only held this place

and segment S-T of sgm 16 for

[è nɑ̀ hìɔ́ pɛ́ʔ] He only fell ill

shows that the amplitude display of the former segment has a slight peak in its centre whilst that of the latter exhibits a fairly uniform outline. This peak would appear to be no more significant than the peak that appears at the centre of the amplitude display of the initial vowel of sgm 16.

It would be fair to conclude therefore that sequences of vowels are generally of equal prominence irrespective of whether they occur on the same pitch or not. The above examples were drawn from

sequences of dissimilar vowels; as the amplitude display of sgm 19 for [àgbèé] shows, comparable statements can be made for sequences of similar vowels too.

The two matrixes given below indicate the various vowel sequences that have been encountered: the first is for oral vowels and the second is for nasalized vowels. Only three words have been encountered in which there is a succession of an oral and a nasalized vowel: [ŋlíĩŋlíĩ] and [ɲríĩɲríĩ] both meaning clear and thin (of liquids) and [kéĩkéĩ] clear, entirely. They are excluded from the matrixes. No example of a word with a nasalized vowel followed by an oral vowel has been encountered.

Second Vowel ⟶

First Vowel ↓

	i	e	ɛ	a	ɔ	o	u
i	ii	ie	iɛ	ia	iɔ	io	iu
e	ei	ee					eu
ɛ	ɛi		ɛɛ			ɛo	ɛu
a	ai			aa		ao	au
ɔ	ɔi				ɔɔ		
o		oe				oo	
u	ui	ue	uɛ	ua	uɔ	uo	uu

Below are words in which these sequences of oral vowels occur; wherever examples are available, the vowels are cited occurring (a) with the same pitch, and (b) with different pitches:

	(a)		(b)	
ii			blɪ̀fɪ́kɪ̀sɪ̀	brick
ie	vɪ̀è	vomit	fɪ̀é	tiger-nut
iɛ	bɪ́ɛ́	name	bɪ̀ɛ́	to be foolish
ia	vɪ́á	fragrance	hɪ̀á	to uproot
iɔ	hɪ̀ɔ̀	ailment	hɪ́ɔ	this place, here
io	mio	thorn		
iu	tʃɪ́ú	"an expression of contempt"		
ei			éì	"an expression of wonder"
ee	ee	yes	àgbèé	"a secret Ewe cult"
eu	kéú	sand		
ɛi			fɛ̀ɛ́ì	"an expression of defiance"
ɛɛ			àblɛ̀ɛ́	butterfly
ɛo	fɛ́ó	beauty		
ɛu	hɛ̀ùù	very bright red (e.g. of fire)		
ai			kái	to remember
aa	záá	fairly small	làá	to lose
ao	hàò	to worry		
au			plàú	"a place name"
ɔi	gɔi	"a place name"		
ɔɔ	jɔ̀ɔ̀	slowly	bɔ̀ɔ́	a little
oe			ɔkpɔ̀é	rat
oo	dóó	persistently	ɔgbɔ̀ɔ́	"a personal name"
ui	tʃúí	heart		
ue	túé	ear	lùé	"a small fish"
uɛ	kùè	neck	bùɛ́	"a personal name"

	(a)		(b)	
ua	dzua	market	bûá	to tell a lie
uɔ	muɔ	blood		
uo	túó	"a grain dish"		
uu	fúú	plenty of, many of		

Next comes the matrix for sequences of nasalized vowels that have been encountered in single words. The examples are arranged as was done for the oral vowels above.

Second Vowel		ɪ̃	ɛ̃	ã	ɜ̃	ʊ̃
First Vowel	ɪ̃	ɪ̃ɪ̃	ɪ̃ɛ̃	ɪ̃ã	ɪ̃ɜ̃	
	ɛ̃		ɛ̃ɛ̃			
	ã	ãɪ̃		ãã		ãʊ̃
	ɜ̃				ɜ̃ɜ̃	
	ʊ̃	ʊ̃ɪ̃	ʊ̃ɛ̃	ʊ̃ã	ʊ̃ɜ̃	ʊ̃ʊ̃

	(a)		(b)	
ɪ̃ɪ̃	vɪ̀ɪ̀	gloomy, depressed	mɪ̀ɪ́	to swallow in big lumps
ɪ̃ɛ̃	fɪ́ɛ́	cold		
ɪ̃ã	fɪ̀ã	to boast	mɪ̀á	to dress well
ɪ̃ɜ̃	hɪ̀ɜ̀	debt		
ɛ̃ɛ̃	gbɛ̀ɛ̀	bad odour	ŋmɛ̀ɛ́	he to leave alone
ãɪ̃	tãɪ́	disgust	tãɪ̀	to sketch
ãã	ŋmàã	slimy	kàá	such as
ãʊ̃	mãʊ́	God		
ɜ̃ɜ̃	gbɜ̀ɜ̀	distinguished	kɜ̀ɜ́	to ache

(a)			(b)	
ɑɪ			àbɑ̀ɪ́	needle
ɑɛ	hɑ̀ɛ	friend		
ɑã	kɑ̀ã	monkey	kɑ̀ã	to crease
ɑɜ	mɑ̀ɜ	laughter	mɑ̀ɜ́	to collect
ɑɑ			fɑ̀ɑ́	to swell

4.1.142. INTER-WORD VOWEL SEQUENCES

Unlike intra-word vowel sequences on which differences of tempo or of emphasis have hardly any significant repercussion, inter-word vowel sequences depend for their phonetic realization on the amount of emphasis with which they are articulated. (Slow tempo is roughly equated here with emphatic speech; though this is an oversimplification, the equation can be adopted once its limitations are borne in mind.) As shown in 4.2.29 below, an Adangme utterance can be articulated with varying degrees of emphasis; two of these are abstracted and labelled "Unemphatic" and "Emphatic" in the examples quoted below, on the understanding that these are mere end-points on a spectrum of varied possibilities.

Adangme syllables are of four phonetic types: C, V, CV and CCV. All C syllables are realized as [m] (see 4.2.311 below). Each of the other three has a nucleus, V, which may or may not be preceded by an onset. Onsets are of two types, simple C- or complex CC-. These four phonetic syllable types are grouped phonologically in 5.1. below into two: V and $1/\bar{1}(CV)$. All

Adangme syllables are therefore phonologically open and generalized phonological singular word structures may be stated in terms of the V and CV types as follows:

Monosyllables:	V, CV
Dissyllables:	VCV, CVV, CVCV
Trisyllables:	VCVV, VCVCV, CVCVCV, CVVCV, CVCVV, CVVV
4-syllable words:	VCVCVV. VCVCVCV, CVVCVV, CVCVCVV, CVCVCVCV
5-syllable words:	VCVCVCVCV. VCVCVCVV, VCVCVVCV, VCVVCVV

No six-syllable singular word has been encountered, and only one seven-syllable singular word [álùgúútùgúú] of phonological structure VCVCVVCVCVV has been encountered.

Only six words have been encountered which have a word-initial V sequence without an intervening C, namely

VVCVV	ɔɔhɔɔ	no
VV	ee	yes
VV	ûû!	ouch!
VV	ɛ̀ɛ́?	What did you say?
VVV	ɛ̀ɛ́ɛ̀!	Really!
VVV	ɛ̀ɛ́ɛ!	Of course!

Quite apart from the fact that these are all exclamatives, their syllabic type has little generality and they are therefore excluded from the structures generalized above. It would be preferable to treat them apart from the bulk of Adangme words.

Below are unemphatic and emphatic renderings of a set of utterances. Inter-word vowel sequences in the emphatic forms are

often (though by no means always) kept apart by the insertion of the glottal stop:

Unemphatic	Emphatic	Meaning
kíìjà	ké? ì jà	When I go
káàjà	ké? à jà	When they go
kóòjà	ké? ò jà	When you (sg) go
lììjà	lè? ì jà	And I went
táàgbò	té? àgbò	Big stone
lòòjà	lè? ò jà	And you went
lèèjà	lè? è jà	And he went
héémǹ̀	há? émǹ̀	Two knives
è jɔ̀ɔdàá́	è jà? ɔdàá́	He went to Odaa
è sɔ̀ɔ̀kplɔ̀ɔ́	è sɔ? ɔkplɔ̀ɔ́	He cast a (metallic) table.
è sɔ̀ɔkplɔ̀ɔ́	è sɔ? ɔkplɔ̀ɔ́	He caught hold of the table.
fɛ́ɛ́mǹ̀	fá? émǹ̀	Two halves
è sɔ̀ɔ̀kplɔ̀ɔ́	è sà? ɔkplɔ̀ɔ́	He burnt (the) table
nɪ́ɪ̀jà	né? ì jà	When I went
náà̀jà	né? à jà	When they went
nɔ́ɔ̀jà	né? ɔ̀ jà	When you (sg) went
nɛ́ɛ̀jà	né? è jà	When he went

4.2.1. ADANGME CONSONANT SOUNDS

The consonant sounds of Adangme are described below. They are grouped by the manner in which they are articulated into Plosives, Nasals, Lateral Fricative, Fricatives, Affricates and Semi-Vowels. The description is related to instrumental data obtained from examining palatograms, spectrograms and kymograms.

For the production of the examples for the palatograms the consonants were each placed before one of the vowels [o], [ɔ] and [ɜ] which themselves give no wipe on the palate. Such wipes as appear on the palatograms are therefore ascribable to the consonant articulations alone. One example is exceptional in employing a vowel other than those mentioned above: it is pgm 8 for [tʃ] which has been included for comparison with pgm. 7 for [tð]. The majority of palatograms provided are indirect palatograms. But a few direct palatograms have been included for the description of those consonants whose place of articulation is so far back in the mouth that indirect palatograms are inadequate for illustrating their articulations.

A brief spectrographic study was made of the consonants to find out the hubs of non-nasal consonants and the hubs and formants of nasal ones. This is because hubs alone are, in general, sufficient cues for the identification of non-nasal consonants but

formants are nearly as important as hubs for the identification of nasal consonants.[1] The nasal consonants were articulated in sustained form (each being followed by the vowel [ɛ]) so as to lay bear their formant positions.[2] Fant has shown that the lowest formant of a nasal consonant has a dominating intensity level, hence what appear to be voice bars on the spectrograms for sustained nasal consonants are in fact their first formants, and are so interpreted here.

The terms hub and locus are often used interchangeably by writers on acoustic phonetics (cf. Ladefoged (1964), p. 12.) but a subtle distinction[3] between the two is perhaps worth emphasizing. Hubs are isolated by visual inspection of broad band spectrograms whereas loci can be obtained only after experiments involving the synthesis of sounds and the evaluation of these through listening tests with a group of subjects have been carried out. In view of this fact, only hubs can be said to have been isolated for Adangme consonants in the present, necessarily limited, study in which synthesis techniques were not employed. This distinction is maintained in the discussion below without prejudice to those general features of loci that may be held to be shared by hubs (e.g. various matters connected with transitions), hence the admission into the discussion of quotations from the works of acoustic

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1. Malecót (1956), p. 278; Jassem (1962), p. 67.

2. Fant (1960), p. 147.

3. See also Fant (1958), p. 315.

phoneticians who discuss loci rather than hubs.

Broad band spectrograms are used below for the isolation of consonant hubs. Each non-nasal consonant was put in the one-word frame VCV(V) for the spectrographic study so as to ensure, as Joos[4] rightly insists, that any transitions observed in the spectrograms can be referred unambiguously to only one hub. This cannot be done as easily if the frame chosen were CVCV for instance. Where it was difficult to find a suitable word of VCV(V) structure for the study of a particular consonant, a two-word utterance of VCV structure was used instead. The justification for this lies in the fact that experiments conducted by the present author showed that there was no significant phonetic difference between pairs of utterances such as

àgbó gate, and

à gbó they are dead

when these occur in unemphatic conversational speech. Cp the VC- and V C- segments of sgms 19 for [àgbàé] and 27 for [à gbé]. It is believed therefore that the use of the V CV frame in some cases will not affect the comparability of the examples as a whole.

The locus of a consonant, to quote Green, "is the theoretical point on the frequency scale at which all vowel transitions associated with a given consonant seem to have their origin." (1959 ,p.7.)

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4. Joos (1948), pp. 101 ff.

It is usually identified by reference to the F2 transitions of contiguous vowels. The choice of F2 rather than any other formant is explained by Green thus: "first formant transitions have little or nothing to do with the place of articulation of a contiguous consonant, whilst.....third formant transitions strengthen, but are not essential to, the perception of most consonants." (p.6.) The above statements about loci apply as well to hubs.

Since the hub of a consonant bears a direct relationship to the vocal tract configuration of the relevant consonant, it follows that the hubs of each set of homorganic consonants should more or less co-incide. The findings of this study broadly confirm those of previous ones in this regard.

The vowel transitions (i.e. those portions of the spectrogram tracing that "connect" the steady-state formants of a vowel to the hub of a contiguous consonant) will, following accepted practice, be called "positive" when the steady-state formant is of a lower frequency value than the hub, and "negative" when the steady-state formant is of a higher frequency value. Where the F2 of a vowel and the hub of a contiguous consonant are of the same frequency values, the vowel makes a "level" transition with the hub of the consonant concerned.

After the description of each consonant, two words are cited as illustrations of its use in the language. These are so selected as to show that, except for [j] and [ɜ] which are immediately

followed by only oral vowels, each consonant may be immediately followed by either an oral or a nasalized vowel. Though the illustrative examples are mostly isolated words, these were uttered in the unemphatic style, except of course those that illustrate the use of [ɻ] and [ɜ].

There are both voiced and voiceless consonants in Adangme.

4.2.2. PLOSIVE CONSONANTS

Adangme plosives are produced by complete closures, in one case at the glottis (for the glottal stop) and in the others in the supra-glottal region of the vocal tract, that temporarily check the egress of pulmonic air from the mouth. The pulmonic air stream is the only one used in Adangme plosive articulations.

There are both single and double closures; the latter are simultaneous closures, one at the velum and the other at the lips, that are imposed on pulmonic egressive air, hence all the releases are egressive.

There are nine plosive consonants in Adangme. All the supra-glottal plosives occur syllable-initially but never syllable-finally. They are the only plosives mentioned by Puplampu (1953, p. 89.) and by Berry (1952). The ninth, the glottal stop, occurs both syllable-initially and syllable-finally.

4.2.21. [p] is a voiceless bilabial plosive. Like other bilabial sounds, it gives no wipe on the palate.

On kgm 23 for [ɔ̀pè] "a personal name" with simultaneous L and M, initial voicing does not end until a little after the closure for [-p-] has been made at X. The segment X-Y marks the duration of the closure for [-p-] on the M tracing. Y-Z represents a brief period of aspiration before the onset of regular wave forms on the L tracing for the final vowel; this period of aspiration is so brief as to be negligible.

The duration of [p] in this particular articulation is approximately 16 cs.

On sgm 20 for [àpàá], both F2 transitions are negative and point to the 1250 Hz region. This will be taken as the hub of [p], though a certain indeterminacy of the reading must be conceded.

[p] may therefore be briefly described as a voiceless bilabial plosive. It occurs syllable-initially only and may be immediately followed by an oral or a nasalized vowel, as in [àpàá] labour and [pɛ̃nɪ̀] muscle.

4.2.22. [b] is the voiced counterpart of [p] and is therefore a voiced bilabial plosive. It gives no wipe on the palate.

On kgm 24 for [àbé] with simultaneous L and M tracings, regular wave forms persist in the L tracing all through the utterance, indicating that all the sounds are voiced. The duration of the closure for [b],

marked by the segment A-B on the M tracing, is of approximately 17 cs duration in this particular articulation.

Sgm 21 for [àbɛ́] shows that [a-] has a level F2 transition and [-ɛ] has a pronounced negative F2 transition. Both seem to point to the 2000 Hz region, and this is taken as the hub of [b], which therefore has a higher hub than [p] with which it shares a bilabial place of articulation.

[b] may therefore be briefly described as a voiced bilabial plosive. It occurs syllable-initially only, and may be immediately followed by an oral or a nasalized vowel, as in [àbɛ́] <u>proverb</u> and [bɔ̃́] <u>tribal facial mark</u>.

4.2.23. [t] is a voiceless plosive which is interdental in word-initial position but dental in intervocalic position.

Pgm 7 for [tɔ̀] shows that for [t-] there are wipes covering central zones 1, 2, 3 and parts of 4 and 5, and also covering parts of the left and right zones. In the left zone the wipe crosses the median line up to just above the First Molar Line and is fairly wide thereafter. And in the right zone it crosses the median line up to just above the Second Pre-Molar and is fairly wide thereafter.

Similar features are exhibited by Pgm 8 for [tí] <u>medicinal powder</u>, except for the fact that the wipes in the left and right zones are wider on the latter palatogram. This difference is attributable to the different vowels that occur after [t] in the two words.

Kgm 25 for [tàtú] with simultaneous L and M tracings shows that

there are no wave forms on the L tracing for either [t] articulation, hence [t] is voiceless. Segment X-Y marks the duration of the closure for intervocalic [t]. It will be noticed that there is greater aspiration (segment x-y on the M tracing) after word-initial [t] than there is after intervocalic [t] at point Z. The duration of intervocalic [t] in this particular utterance is about 17 cs.

On sgm 22 for [átɛ̀] " a personal name", the F2 transition of [a-] is positive but that of [-ɛ] is negative. Both point to the 2250 Hz region, and this is treated as the hub of [t].

[t] may therefore be briefly described as a voiceless interdental or dental plosive. A subscript dental diacritic is dispensed with in the transcription, since the varieties of [t] sound have clearly-defined and mutually-exclusive environments. A third [t] articulation, an alveolar one, occurs in clusters with [ɹ], see 4.2.65 below.

[t] occurs syllable-initially only, and may be immediately followed by an oral or a nasalized vowel, as in [tò] goat and [tàtṹ] ant.

4.2.24. [d] is a voiced alveolar plosive.

Pgm 9 for [dò] dance shows that there are wide wipes in the left and right zones and these touch the median lines only along parts of numbered zones 3 and 4 where, in fact, these wipes join up. These features indicate that the blade of the tongue touches the alveolar ridge during the articulation of [dò].

[d] is a tip-up articulation, as is [n] (4.3.32). These two, however, have a backer point of contact on the alveolar ridge than do [s] and [z] which are tip-down articulations.

On kgm 26 for [dǎ] alcohol with simultaneous N and M tracings, point A marks an upward displacement on the M tracing corresponding in the pronunciation to the release of [d]. The onset of regular wave forms on the N tracing at point B occurs a little later and is preceded by faint wave forms that regularly characterize the articulation of non-nasalized voiced sounds. These faint wave forms are ascribable to bone conduction.

On kgm 27 for [dàdé] with simultaneous L and M tracings, the wave forms on the L tracing for the whole utterance show that the word is wholly voiced. Segment X-Y marks the duration of the closure for intervocalic [d] of this particular utterance and is about 14 cs.

Sgm 23 for [àdàá] shows that the F2 transitions bordering on [-d-] are both positive and that both point to the 2250 Hz region. This figure corresponds to that obtained for [t] even though the latter is, strictly speaking, a pre-alveolar consonant.

[d] may be briefly described as a voiced alveolar plosive. It occurs syllable-initially only and may be immediately followed by an oral or by a nasalized vowel as in [dàdé] iron or metal, and [àdàá] Ada, "a place name".

4.2.25. [k] is a voiceless velar plosive.

As pgm 10 for [kɔ̀] blow shows, velar consonants (and labial velar ones too, for that matter) yield hardly any wipes on the artificial palate, hence such consonants are often better studied by employing the direct method of palatography. A comparison of pgm 10 with D pgm 10 shows that the former has small wipes only in the left and right zones and that these are bisected by the Fourth Molar Line. They do not join up in the central zone. But D pgm 10 has an extensive arched wipe covering the whole of the velum thus indicating complete contact between the back of the tongue and the velum during the articulation of [kɔ̀].

[k] is a tip-down articulation.

On kgm 20 for [kà] with simultaneous L and M tracings X marks the release of [k] and Y the onset of voicing for [a]. The segment X-Y represents a period of aspiration that is so brief as to be negligible.

Kgms 28 and 29, both with simultaneous L and M tracings, represent two possible ways of pronouncing [kɔ̀]. The release of [k] at point X on both M tracings seems to be preceded by a downward displacement which is more marked on kgm 29 than on kgm 28. It is probably due to jaw movement before the velar release which enlarges the (pre-velar) oral cavity. It appears that kgm 28 is the more typical articulation, and it compares favourably with intervocalic [k] in kgm 11 for [àkɔ́dɑ́].

On sgm 24 for [áko] parrot, both vowels have steady-state F2s, the former at 1750 Hz and the latter at 1000 Hz. The hub of [k] is therefore indeterminate, as is often the case with velar consonants.

Segment X-Y corresponds to the [k] articulation, incorporates no voice bar and is of approximately 18 cs duration.

[k] may therefore be briefly described as a voiceless velar plosive. It occurs syllable-initially only and may be immediately followed by an oral or a nasalized vowel, as in [kà] valour and [áko] parrot.

4.2.26. [g] is a voiced velar plosive.

D pgm 11 for [gó] cemetery shows an extensive arched wipe on the velum, indicating that there was complete contact between the back of the tongue and the velum during the articulation of [gó].

[g] is a tip-down articulation.

On kgm 30 for [gà] with simultaneous N and M tracings, the whole utterance is characterized by faint wave forms on the N tracing already attributed to bone conduction. The faintness of these wave forms shows that both sounds are non-nasal and voiced. The difference between these faint wave forms and those that characterize "true" nasal sounds will be seen by comparing Kgm 30 to kgm 31 for [gà] with simultaneous N and M tracings. On the latter, the release of [g] at point S on the M tracing is soon followed on the N tracing at point T by the onset of regular wave forms for the

nasalized vowel.

Needless to say, the jaws are held quite steady prior to the release of the respective [g] sounds, hence no perceptible downward displacements are in evidence. The same observation applies to kgm 32 for [gã] with simultaneous L and M tracings. Here the fact that wave forms appear on the L tracing both before and after the release of [g] shows that both sounds are voiced.

Sgm 25 for [ágó] "a personal name" shows that the F2s of [a] and [o] are virtually steady state respectively at 1750 Hz and 1000 Hz, thus providing an illustration of the extreme variability of the hubs of velar and labial velar consonants (see 4.2.34. below). The hub of [g] is therefore indeterminate.

The duration of [g] in this particular articulation is marked by segment Q-R and is approximately 18 cs.

[g] may therefore be briefly described as a voiced velar plosive. It occurs syllable-initially only and it may be immediately followed by either an oral or a nasalized vowel, as in [gà] <u>skill</u> and [gà] <u>Accra</u>.

4.2.27. [kp] is a voiceless labial/velar plosive.

D pgm 12 for [kpó] <u>knot</u> shows an arched and, in some parts, incomplete wipe on the velum, indicating that there was some contact between the back of the tongue and the velum during the articulation of [kpó].

On kgm 33 for [kpà] with simultaneous L and N tracings, the

onset of wave forms on the N tracing for [ǎ] at point Z is preceded on both tracings by the absence of wave forms. This shows that [kp] is voiceless and non-nasal. Kgm 34 for [ɔ̀kpɔ̀ɔ́] rat with simultaneous L and M tracings confirms the voicelessness of [kp], the duration of closure for which is indicated by segment A-B. The duration of the closure is, in this particular articulation, approximately 17 cs.

Sgm 26 for [àkpé] shows that the F2 of [a-] is virtually steady state of 2000 Hz whilst that of [-e] has a negative transition pointing to 1000 Hz. This is an example of the "2-hub" phenomenon noted for labial velar consonants by Ladefoged (1964, p.12.). The hubs of [kp] are therefore at 1000 Hz and 2000 Hz.

[kp] may be briefly described as a voiceless labial velar plosive. It occurs syllable-initially only and may be immediately followed by an oral or a nasalized vowel, as in [àkpé] thousand and [kpɛ̀ɛ̀] rope.

4.2.28. [gb] is a voiced labial velar plosive.

D pgm 13 for [gbó] to die shows an arched partial wipe on the velum, indicating that there was infirm contact between the back of the tongue and the velum during the articulation of [gbó].

On kgm 35 for [gbà] shed with simultaneous L and M tracings, wave forms appear on the L tracing both before and after the release of the double closure for [gb], thereby indicating that both sounds are voiced. On kgm 36 for [gbɔ̀ɔ̀] with simultaneous N and M tracings the period preceding the release of [gb] at point

Z is characterized on the M tracing by faint wave forms already attributed to bone conduction during the articulation of voiced non-nasal sounds. The difference between these faint wave forms and the prominent ones immediately following point Z on the N tracing is quite obvious; the latter correspond to the pronunciation of nasalized [ɔ̃].

Another clear illustration of bone conduction traces is provided by a comparison of kgms 72 for [gbì] and 73 for [kpì], cf. especially the portions preceding point X on the N tracings of these two.

On sgm 27 for [à gbé] <u>their dog</u> the F2 of [a] is virtually steady state at 2000 Hz whilst that of [-e] has a negative transition pointing to 1000 Hz (cp sgm 26 for [àkpé]). The hubs of [gb] are therefore at 1000 Hz and 2000 Hz.

The segment Q-R corresponds to the duration of the closure for [gb] which, in this particular articulation, is approximately 17 cs. The segment incorporates a voice bar.

[gb] may therefore be briefly described as a voiced labial velar plosive. It occurs syllable-initially only, and may be immediately followed by an oral or a nasalized vowel, as in [àgbó] <u>gate</u> and [gbɔ̀ɔ̃] <u>distinguished</u>.

4.2.29. [ʔ], the glottal stop, is produced by a closure (and subsequent release) of the vocal cords, and is therefore without the vibrations of voice. Like other glottal sounds, it gives no wipe on the palate.

Kgms 37 for [táàgbɔ̀], 38 for [tá àgbɔ̀] and 39 for [táʔ àgbɔ̀] all meaning <u>big stone</u>, illustrate one use of the glottal stop and represent three realizations of one utterance at decreasing tempos. They may be compared with respect to the segments labelled Q-Z, Q marking as accurately as possible the point where [t-] is released and Z marking, again as accurately as possible, the point where the closure for [-gb-] is made.

On kgm 37 for [táàgbɔ̀] with simultaneous L and M tracings, the release of [t-] is marked on the M tracing by an upward displacement at Q which is followed by regular wave forms up to point Z. Q-R on the L tracing represents a brief period of aspiration after which regular wave forms build up on the L tracing and persist well beyond point Z. These features indicate that there is continuous and unabated phonation over the segment R-Z, corresponding in the pronunciation to [-aa-].

On kgm 38 for [tá àgbɔ̀] with simultaneous L and M tracings, Q again marks the release of [t-], and Q-R a brief period of aspiration. In this case, however, the build-up of regular wave forms on the L tracing at R soon diminishes, but increases again before point Z. The wave forms on the M tracing exhibit similar features. These features cumulatively indicate that there is continuous but briefly

reduced phonation over the segment R-Z.

Yet a different picture is presented by kgm 39 for [tɛ́ʔ àgbɔ̀] where the segment Q-Z shows that after the release of [t-] there is phonation for [-ɛ] and then follows a complete absence of wave forms on both the L and M tracings. This corresponds in the pronunciation to the glottal closure, the release of which is marked by the sudden resumption of regular wave forms on both tracings at point S. The total duration of the glottal closure is, in this instance, approximately 20 cs. It must be emphasized that the glottal stop occurs in this environment in a particular style of speech, i.e. slow emphatic speech.

A comparison of the durations of the three utterances, delimited in each case by Q-N (Q marking where [t-] is released, and N where the last wave forms appear on the M tracing) shows that [tɛ́àgbɔ̀] is 58.5 cs long, [tɛ́ àgbɔ̀] is 72 cs long and [tɛ́ʔ àgbɔ̀] is 75 cs long. The apparent brevity of the first might be accounted for by the fact that the M tracing returns to the "zero line" approximately 10 cs later in that case than it does in the other two cases.

The glottal stop does not occur in Adangme in such environments as to make it susceptible to spectrographic analysis in the VCV(V) or V CV frames chosen for this purpose. Sgm 28 for [tɛ́ʔ àgbɔ̀] shows that [-ɛ] has a positive transition pointing to the 2750 Hz region whilst the initial segment of [a-] is virtually steady state at 2000 Hz. Thus even if the influence of other hubs were ruled out (and this, clearly, cannot be done) the hub of the glottal stop would

still be indeterminate.

The glottal stop, then, is used in slow emphatic speech to keep apart, as it were, sequences of word-final and word-initial vowels which would otherwise be conflated[5]. It also occurs before vowel-initial utterances in emphatic speech, as in

ɔ̀kpɔ̀ŋɔ́ horse, unemphatic; but

ʔɔ̀kpɔ̀ŋɔ́ horse emphatic.

Two other uses of the glottal stop will be illustrated below and dealt with in greater detail in Chapter 6.

The first concerns aorist negative constructions such as

i ka	I am tall I was tall;
ɨ kɛ́ʔ	I am not tall, I was not tall.
ɨ kà	I tried
ɨ kɛ́ʔ	I did not try
ɨ sà	I sent for
ɨ sɛ́ʔ	I did not send for

The effect of the glottal stop in the vowel preceding it is illustrated by the two final vowels of the last pair of utterances on sgm 45. In [ɨ sà] the final vowel has a negative F2 transition pointing to 2250 Hz, whilst in [ɨ sɛ́ʔ] the F2 of the final vowel is steady state at 2250 Hz, indicating that it has a more open quality

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5. One important exception is the junction between nominals and definite articles; the glottal stop has never been observed to occur in that context.

than that of the former utterance. It is also shorter.

The second use of the glottal stop is with a group of post-verbal adverbs, as in

ì dɔ̀	I left
ì dɔ̀ pó?	I left defiantly

Finally, it must be pointed out that Adangme resembles quite a few other languages in having what amounts to an elusive glottal stop: its incidence in the four environments described above is by no means obligatory, and it is more likely to be present in very slow emphatic speech than in normal conversational speech.

4.2.3. NASAL CONSONANTS

There are five nasal consonants in Adangme, a total which, as Ladefoged[6] has pointed out in connection with some other West African languages, exceeds by one the maximum recorded for any one language in Hockett's Manual of Phonology. The five are [m], [n], [ɲ], [ŋ] and [ŋm].

Any of the five nasal consonants may occur syllable-initially. [ŋm] and [ɲ] are confined to this position, and [m] may occur as a syllable. ~~The other two, namely~~ [m], [n] and [ŋ], occur syllable finally in certain loan words, such as

[pǎmplóó] bamboo
[kǎntɔ́] sheen ~~from Twi~~

and [krɔ́ŋkrɔ́ŋ] holy from Ga.

In such cases, [ŋ] and [n] are homorganic with any consonant that may follow them in the same word. These syllable-final occurrences of nasal consonants are excluded from the phonetic description presented below but will be dealt with in 5.5.

A prosodic statement on nasalization in the Adangme NP is presented in Chapter 6.

4.2.31. [m] is a bilabial nasal consonant. It gives no wipe on the palate.

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6. Ladefoged (1964), p. 23.

On kgm 40 for [mí] marbles (a game), with simultaneous L and N tracings, the whole utterance is characterized by regular wave forms on the L tracing, indicating that both sounds are voiced. On the N tracing, regular wave forms begin at R but diminish at S; S marks the junction of nasal [m] and non-nasalized [i].

On kgm 14 for [mɔ̀mɔ̀] with simultaneous N and M tracings, segment A-B represents the duration of the closure for intervocalic [-m-]. In this particular case, its duration is approximately 14 cs.

On sgm 29 for [mà] town with a sustained [m] articulation, seven[7] formants appear for [m] at 250 Hz, 1250 Hz, 1750 Hz, 2500 Hz, 3000 Hz, 3750 Hz and 4750 Hz. The hub of [m] is its F2, at 1250 Hz. It will be noticed that the negative F2 transition of [-ã] points to the same frequency region. The hub of [m] is therefore lower than that of [p] but co-incides with that of [b]. These three, of course, share a bilabial place of articulation.

[m] may therefore be briefly described as a bilabial nasal consonant. It occurs immediately before both oral and nasalized vowels, as in [mɔ̀mɔ̀] flower.

. . .

4.2.311. Besides occurring as a syllable onset, as in the example above, [m] can also occur as a phonetic syllable by itself.

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7. cp. Jassem (op.cit., p. 67) who found that he could distinguish seven formants below 4 kHz for the nasal consonants of Standard Polish.

This happens most commonly in colloquial speech (but is optional even there) and involves the syllable [mĭ] (but never the syllable [mi] with its oral vowel) when it is not immediately followed in the same sentence by a vowel. The grammatical structures to which this phenomenon applies are reviewed below. It must be pointed out that all such phonetic [m] syllables are treated in this thesis as having CV phonological structure.

4.2.3111. Nominal word followed by locative suffix [-mì], as in

(a) nà̰ mouth ;

nà̰m in the mouth, with [-m] final;

nà̰m ko in a certain mouth, with [m] immediately followed by a consonant-initial syllable;

but nà̰mì ɜ the interior of the mouth, with [mì] followed immediately by a vowel.

(b) we káke one house;

we kákem in one house, with [-m] final;

we kákem gbéhĭ dogs from one house, with [m] followed immediately by a consonant-initial syllable.

we kákemì ɔslà́ accident(s) inside one house, with [mì] followed immediately by a vowel.

(c) When [-mì] is suffixed to subject pronouns, however, it has no alternative forms even in colloquial speech. This is one of the characteristics that distinguish subject pronouns from other

nominal words that may occur in subject position; cf.

èmǐ dzɔ̀ It is cold (of a liquid)

He is kind (of a person)

but *èm dzɔ̀ does not occur.

4.2.3112. Gerunds formed by suffixing [-mǐ] (2.7.33.) as in

dzá to worship;

dzám worshipping, sect, with [-m] final;

dzám ko a certain sect, with [m] followed immediately by a consonant-initial syllable;

but dzámǐ 3 the sect, the act of worship with [-mǐ] followed immediately by a vowel.

4.2.3113. Monomorphemic structures, such as

(a) hìàm rain; cf. the use of this word in the following two sentences:

hìàm nɛ̀ it rained, with [m] followed immediately by a consonant-initial syllable.

hìàmǐ ɔ̀ nɛ̀ the rain fell; with [mǐ] followed immediately by a vowel.

(b) The only monomorphemic words encountered which have no alternative forms are [hʊ́mǐ] humble person, [ázìmí] Moslem fast, and [nɛ̀mí] relative. These three words always occur in the forms cited even in the fastest colloquial speech.

4.2.3114. The first person singular pronoun object [mĩ] (3.2.24.) as in:

hə́m sìkə́ — give me some money, with [m] immediately followed by a consonant-initial syllable.

but hə́mĩ ɔ̀mɔ̃́ — give me some rice, with [mĩ] followed immediately by a vowel.

As pointed out above, where alternative (reduced) forms have been cited as occurring, they occur frequently but by no means invariably in colloquial speech.

The consonant-final sounds of certain unassimilated loan words exhibit features comparable to those described for [m], cf. 5.5.33.

4.2.32. [n] is an alveolar nasal consonant.

Pgm 14 for [nɔ̃̀] person shows that there are wide wipes in the left and right zones from just below the Canine Line and that these cross the median lines only in parts of numbered zones 3,4 and 5. They join up in numbered zone 4, indicating firm contact between the blade of the tongue and the hinder part of the alveolar ridge during the articulation of [nɔ̃̀].

[n] is a tip-up articulation but, like [d], it has a backer wipe than do [s] and [z] which are also alveolar consonants.

On kgm 41 for [nà] with simultaneous L and M tracings, there are regular wave forms on the L tracing for the whole word, indicating that both sounds are voiced.

On kgm 10 for [nà] with simultaneous N and M tracings, the

release of the contact for [n] is marked at Z by the onset of regular wave forms on the M tracing and by the sudden diminution and subsequent cessation of the erstwhile regular wave forms on the N tracing. These features illustrate the fact that [n] is nasal and [a] is non-nasalized.

The duration of a typical [n] is illustrated by kgm 19 for [ànǎnà] fly with simultaneous N and M tracings, where these two particular intervocalic [n]s are respectively of approximately 16 cs.and 20 cs. duration; This difference is considered insignificant for present purposes.

Sgm 30 for [nà] with a sustained [n] articulation shows that there are six prominent formants for [n] respectively at 250 Hz, 2000 Hz, 2750 Hz, 3250 Hz, 3750 Hz and 5000 Hz. The hub of [n] is its F2, at 2000 Hz. It will be noticed that the slightly positive F2 of [ǎ] ~~has a level transition at about~~ points to this frequency.

[n] may therefore be briefly described as an alveolar nasal consonant. It occurs syllable-initially only, and may be immediately followed by an oral or a nasalized vowel as in [nà] Narh, "a personal name" and [nà] cow.

. . .

4.2.33. [ɲ] is an alveolo-palatal nasal consonant.

Pgm 15 for [ɲǎ] breast shows that there are wipes in the left, central and right zones. In the left zone the wipe crosses the median line from the Incisor Line up to just below the Fourth

Molar Line; in the right zone it crosses the median line from the Canine to the Second Molar. In the central zone the wipe covers parts of numbered zones 2, 3, 4, 5, 6 and 7 and is firmest and broadest in numbered zone 4. These features cumulatively indicate that [ɲ] is an alveolo-palatal consonant (cp. pgms 22 for [tʃo] and 23 for [dʒó].).

A noteworthy feature of pgm 15 is the slight wipe in the middle of central zone 6. This feature appeared repeatedly in all of many palatograms made for [ɲ]; see for instance pgm 30 for [ɲà].

[ɲ] is a tip-down articulation.

On kgm 42 for [ɲá] with simultaneous L and M tracings, regular wave forms on the L tracing characterize the whole word, indicating that both sounds are voiced.

On kgm 17 for [buɲukú] with simultaneous N and M tracings, A-B represents the duration of the closure for [-ɲ-]. This segment is spanned on the corresponding N tracing by regular wave forms that accompany the articulation of [ɲ], the only nasalized sound in the word.

The [ɲ] articulation has a duration of approximately 12 cs in this particular case.

Sgm 31 for [ɲà] with a sustained [ɲ] articulation shows that there are formants for [ɲ] at 250 Hz, 2000 Hz, 2750 Hz, 3250 Hz, 4000 Hz and 6500 Hz. Its hub would be expected to be the F2 at 2000 Hz but the positive F2 transition of [-à] points instead to the 3250 Hz region; the hub of [ɲ] is therefore indeterminate.

[ɲ] may therefore be briefly described as an alveolo-palatal nasal consonant. It occurs syllable-initially only, and may be immediately followed by an oral or a nasalized vowel, as in [buɲukú] dust and [ɲã̀] mouth.

4.2.34. [ŋ] represents a velar nasal consonant.

D pgm 16 for [ŋɔ̀] shows an extensive arched wipe on the velum, comparable in area to those observed on d. pgms 10 and 11 for [kɔ̀] and [gɔ́] respectively, which indicates that there was complete contact between the back of the tongue and the alveolar ridge during the articulation of [ŋɔ̀].

On kgm 44 for [ŋɔ̀] to marry a woman with simultaneous N and M tracings, regular wave forms on the N tracing cover the whole word, indicating that both sounds have a nasal resonance. On kgm 43 for [sɔ̀ŋɔ̀] with simultaneous L and N tracings, the whole word save [s] is characterized by regular wave forms on the L tracing, showing that all the sounds save [s] are voiced. The duration of intervocalic [-ŋ-], the only nasal sound in the word, is marked by segment X-Y which in this particular articulation has a duration of approximately 17 cs.

Sgm 32 for [ŋã] grass with a sustained [ŋ] articulation illustrates the extreme variability of the loci or hubs of velar consonants which has often been commented on by other investigators[8].

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8. See e.g. Green (1959), p. 8; Fant (1958), p. 318.

[ŋ] appears to have seven formants at the following frequencies: 250 Hz, 1000 Hz, 2000 Hz, 2750 Hz, 3250 Hz, 3750 Hz and 5250 Hz. These would seem to indicate that the F2 and hub of [ŋ] is at 1000 Hz. But [ã] has a steady-state F2 (and hence a level transition) at 1750 Hz. The problem is unresolved, and it is interesting to note that [k] and [g] which are homorganic with [ŋ] have indeterminate hubs too.

[ŋ] may therefore be briefly described as a velar nasal consonant. It occurs syllable-initially only and may be followed by an oral or a nasalized vowel, as in [ŋɔ̀] salt and [ŋã] grass.

4.2.35. [ŋm] is a labial velar nasal consonant.

D. pgm 17 for [ŋmɔ̃] shows that there is an arched wipe on the velum but that this is narrower in area than that observed for d. pgms. 12 for [kpɔ́] and 13 for [gbɔ́]. It is big enough to show, however, that there was complete contact between the back of the tongue and the soft palate during the articulation of [ŋmɔ̃].

Kgm 45 for [ŋmɔ̃] with simultaneous N and M tracings shows that regular wave forms persist on the N tracing for the whole word, indicating that both sounds have a nasal resonance. It will be noticed that the release of [ŋm] is marked at point S on the M tracing by a downward displacement that often indicates the incidence of very slight suction when the double closure of [ŋm] is released.

On kgm 22 for [ŋmɔ̀ŋmɔ̀] with simultaneous L and M tracings, this downward displacement appears after the first [ŋm] but not

after the second; its absence in the latter case may be attributed to weaker articulation occasioned by the intervocalic position of the sound. The duration of intervocalic [-ŋm-] in this instance is approximately 16 cs, i.e. segment Q-T.

On sgm 33 for [ŋmã] with a sustained [ŋm] articulation, formants appear for [ŋm] at 250 Hz, 2000 Hz, 2750 Hz, 3250 Hz, 3750 Hz and 5250 Hz, and ~~6000 Hz~~. These would seem to indicate that the hub of [ŋm] is the F2 at 2000 Hz, but the negative F2 transition of [ã] points to 1000 Hz. [ŋm] therefore has twin-hubs at 1000 Hz and 2000 Hz, and shares these with [kp] and [gb] which are also labial velar consonants.

[ŋm] may therefore be briefly described as a labial velar nasal consonant. It occurs syllable-initially only, and may be followed by an oral or a nasalized vowel, as in [ŋmɔ̀ŋmɔ̀] side of the ribs and [ŋmɜ̃] farm.

4.2.4. LATERAL FRICATIVE

[l̥] is a voiceless lateral fricative which occurs in emphatic speech in contexts where the consonant cluster [hl-] occurs in unemphatic speech. The only other analogous pair encountered in Adangme so far are [ɜ][9] for emphatic speech and [j] for unemphatic speech. All other consonants are merely lengthened when they occur in emphatic speech.

Pgm 19 for [l̥ɜ] shows that there are wipes in the left, right and central zones. In the left zone, it reaches the outer edge of the palatogram from the Lateral Incisor Line to the Third Molar Line and is narrow beyond the latter point. It also crosses the left median line in numbered zones 3 and 4; in the former numbered zone it joins up with the wipe in the right zone which is narrow and extends from the Canine to well past the Second Molar. It crosses the right median line in numbered zones 3 and 4.

It will be noticed that contact of the tongue with the sides of the palate is not very firm, especially above the Third Molar Line on the left and above the Second Molar on the right. These are presumably the gaps through which pulmonic air escapes out of the mouth during the articulation of [l̥ɜ].

On kgm 46 for [l̥ɜ̀mí] with simultaneous L and N tracings, the

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9. First noted by Berry (1957), p. 418.

segment R-S marks a slight upward displacement on the N tracing and corresponds to a slight nasal exhalation at the beginning of the word. The corresponding section of the L tracing bears no wave forms, thereby indicating that [ɬ̥] is voiceless. The onset of regular wave forms on both the L and the N tracings at point S marks the beginning of the vowel [ã]. As the wave forms on the L tracing show, the rest of the word is voiced.

On kgm 47 for [ɬ̥ɜ] with simultaneous N and M tracings, Q-Y marks an upward displacement on the M tracing corresponding to the [ɬ̥] articulation. The absence of regular wave forms on the corresponding section of the N tracing shows that [ɬ̥] is non-nasal.

On sgm 34 for [à ɬ̥ɜ] <u>their harpoon</u>, the main clue as to the hub of [ɬ̥] is the steady-state F2 of [a] at 2000 Hz; [ɜ] appears to have a positive transition pointing to the same frequency region but this is not very clearly delineated. 2000Hz will be taken as the hub of [ɬ̥], which therefore has the same hub as [n], [s], [z] and [l] with which it shares an alveolar place of articulation.

[ɬ̥] may therefore be briefly described as a voiceless lateral fricative. It occurs syllable-initially only, and may be immediately followed by an oral or a nasalized vowel, as in [ɬ̥ui] <u>egg</u> and [ɬ̥ãmí] <u>moon</u>. (The brevity of [ɬ̥] gives it a soft quality.)

. . .

4.2.5. LATERAL CONSONANT

[l] is a voiced alveolar lateral consonant.

Pgm 18 for [lð] shows that there are wipes in the left, right and central zones. In the left zone the wipe extends from the Lateral Incisor Line to well above the Fourth Molar Line, and crosses the median line in numbered zones 3 and 4. In the right zone it extends from just above the Canine to the back, and crosses the median line in numbered zones 3, 4 and 5. The wipes in the left and right zones join up in numbered zones 3 and 4.

It will be noticed that contact of the tongue with the outer edge of the palate is weak in the right zone. These are the gaps through which pulmonic air presumably escapes during the articulation of [lð].

On kgm 48 for [lð] with simultaneous L and M tracings, regular wave forms appear on both tracings for the duration of the word. Those on the L tracing indicate that both sounds are voiced.

On sgm 35 for [ə lɛ] their firewood, [l] has formants at 500 Hz, 2000 Hz, 3500 Hz and 4750 Hz. The level F2 transition of [ə] and the negative F2 transition of [ɛ] are both linked to the F2 of [l], whose hub is therefore at 2000 Hz.

The [l] articulation is, in this particular instance, of approximately 13 cs duration.

4.2.51. [l] may therefore be briefly described as a voiced alveolar lateral consonant. In phonemic terms, it may be said to be the principal member of a phoneme whose other members are an alveolar fricative [ɹ] and an alveolar flapped consonant which, for typographical convenience will be represented in this thesis by the normal I.P.A. symbol for a rolled alveolar consonant, [r]; "principal" status is assigned here solely on the privileges of occurrence of the three consonants. These three have the following distributional characteristics.

4.2.511. [l] occurs syllable-initially and may also form consonant clusters with bilabial, labiodental, velar and labial velar consonants, and with [h] and [s], as exemplified by the following:

Syllable-initial:- [lɔ̀] meat, fish; [àlɔ̀ŋ́] hare.

Bilabial cluster:- [plɔ̀] rafia fish-bag; [blɔ] way; [mlàá] law, order.

Labiodental cluster:- [flɔ̀ɔ́] stew; [vlɑ́à] fast (adv.).

Velar cluster:- [klɑ́à] soul; [glì] wall.

Labial velar cluster:- [àkplɔ̀] spear; [gbla] to pull; [ŋmlàá] noise; [wlá] to solidify.

[h-] cluster:- [hlui] egg; [hlɔ̀] harpoon.

[s-] cluster:- [slɛ̀é] comb.

When [l] forms a cluster with a voiceless consonant it is usually subject to partial devoicing, cf. segment A-X on kgm 16 for [e plɔ ɔ] his rafia fish-bag, with simultaneous L and M tracings. Cp. segment A-X on kgm 65 for [fl3́] coffin where [l] is again partially devoiced. Predictably, such devoicing is not detectable on the following kgms which were made with simultaneous L and M tracings: 49 for [e plɔ ɔ], 50 for [e blɔ ɔ] his path, 64 for [e slɛ̀ɛ́] his comb. Nor is it clearly discernible on kgm 65a for [ɛ̀ fl3̀] his coffin, with simultaneous L and M tracings.

4.2.6. FRICATIVE CONSONANTS

There are seven fricative consonants (excluding the lateral fricative which has been dealt with above) in Adangme, namely [f], [v], [s], [z], [ʃ], [ʒ] and [h]. An eighth consonant is described alongside the fricatives for convenience of presentation and it is not to be taken as a fricative: this is an alveolar flapped consonant for which the symbol [r] is used in this thesis.

[ɹ] and [r] occur only in consonant clusters in indigenous Adangme words. But [r] initiates a syllable in one single word, the personal name [oforí] Ofori, a word which for this and for extra-linguistic reasons is considered to be a loanword (5.5. below).

It is commonly pronounced [ofolí] by monolingual Adangmes.

[ɔ] occurs only in emphatic articulations, in contexts where [ɔ] occurs in unemphatic speech; cp. [l̩] and [hl].

All the other consonants occur syllable-initially.

4.2.61. [f] represents a voiceless labio-dental fricative. It gives no wipe on the palate.

On kgm 51 for [fã́] with simultaneous L and M tracings, Q marks the onset of regular wave forms on the L tracing and is preceded on the M tracing by an upward displacement that corresponds to the [f] articulation. [f] is therefore voiceless.

On sgm 36 for [àfã́] devination, the negative transitions of the F2s of the two vowels indicate that the hub of [f] is at about 1250 Hz. The segment S-T corresponding to the [f] articulation has, in this particular utterance, a duration of approximately 20 cs. It incorporates no voice bar.

[f] may therefore be briefly described as a voiceless labio-dental fricative. It occurs syllable-initially only, and may be immediately followed by an oral or a nasalized vowel, as in [bɔ̀fó] maize and [fã́] half.

4.2.62. [v] represents a voiced labio-dental fricative. It gives no wipe on the palate.

On kgm 52 for [vónú] with simultaneous L and M tracings, R marks the beginning of a very slight upward displacement on the M tracing. This precedes by approximately 6 cs the onset of regular wave forms on both tracings indicating that, in word-initial position, [v] is probably not fully voiced.

On sgm 37 for [à vǎ] their septic wound, the negative F2 transitions of the two vowels point to 1250 Hz and thereby indicate the location of the hub of [v] at this frequency; this figure is identical to that observed for [f] with which [v] shares a labio-dental place of articulation. The segment Q-R corresponds to the [v] articulation, incorporates a voice bar and is approximately 16 cs long in this particular case.

[v] may therefore be briefly described as a voiced labio-dental fricative. It occurs syllable-initially only, and may be immediately followed by an oral or a nasalized vowel, as in [vónú] tear(s) and [vũ] (water) well.

4.2.63. [s] represents a voiceless alveolar fricative.

Pgm 20 for [sð] Thursday, shows that there are wipes in the left, right and central zones. In the left zone the wipe extends from the Lateral Incisor Line to the back and crosses the median line in numbered zones 3 and 4. In the right zone it extends from the Lateral Incisor to the back and crosses the median line in numbered zones 3 and 4. The wipes in the central zone do not join

up, indicating the presence of a gap in the contact of the front of the tongue with the alveolar ridge during the articulation of [sə̀].

[s] is a tip-down articulation.

On kgm 53 for [àsá] with simultaneous L and M tracings, X-Y indicates a period of voicelessness that corresponds to the [s] articulation. This segment encompasses on the M tracing fluctuations in the height of the upward displacement that correspond to the advancement of the front of the tongue to touch the alveolar ridge and its subsequent withdrawal during the intervocalic [s] articulation; this tongue movement naturally causes fluctuations in the outflow of pulmonic air and a consequent fluctuation in the pressure emitted by the mouthpiece onto the kymogram tracing. The duration of [s] in this particular instance is approximately 25 cs.

On sgm 38 for [àsá], the virtually steady-state F2s of the two vowels indicate that there are level transitions at 2000 Hz. This then is the hub of [s], which therefore shares the same hub with [n], [l], [l̩] and [z] all of which are also alveolar consonants.

The duration of [s] in this particular articulation corresponds to the segment A-B and is approximately 30 cs. It is longer here than the average consonant; it will be noticed that the two vowels are also quite long, due to a fortuitous slow rate of articulating the word as a whole.

[s] may therefore be briefly described as a voiceless alveolar fricative. It occurs syllable-initially only, as in [àsá] <u>sitting-room</u> and [sɛ́] <u>seat</u>. As these examples show, it may be immediately

followed by an oral or a nasalized vowel.

4.2.64. [z] represents a voiced alveolar fricative.

Pgm 21 for [zó] shows that there are wipes in the left, right and central zones. In the left zone, the wipe extends from the Incisor Line to the back and crosses the median line in numbered zones 2, 3 and 4. The wipe in the right zone is narrower than that in the left zone and extends from the Frontal Incisor to the back, crossing the median line in numbered zones 2, 3 and 4. The wipes in the central zone do not join up, indicating a gap in the contact of the tongue with the alveolar ridge during the articulation of [zó].

A comparison of pgm 21 with pgm 20 for [sò] shows that the former has a firmer and wider alveolar wipe. [z] is a tip-down articulation. It resembles [s] in having a fronter alveolar wipe than do [d] and [n] which are also alveolar consonants.

On kgm 54 for [zó] with simultaneous L and M tracings, regular wave forms on the L tracing cover the whole word thereby indicating the presence of some voicing even before the release of the narrowing for [z] at point T.

The duration of intervocalic [z] is illustrated by kgm 55 for [àzé] witchcraft with simultaneous L and M tracings. Segment Y-Z corresponds to the [z] articulatipn; [z], in this particular instance, has a duration of approximately 12 cs.

On sgm 39 for [àzé], the F2 transition of [a] is level at 2000 Hz whereas [e] has a negative F2 transition pointing to the same frequency region. The hub of [z] is therefore located at 2000 Hz a figure which is identical to the one observed for homorganic [s] above. The duration of [z] in this particular utterance is represented by segment Q-R and is approximately 34 cs, the more-than-average duration being due to a fortuitous slow articulation of the word as a whole.

[z] may therefore be briefly described as a voiced alveolar fricative. It occurs syllable-initially only and may be immediately followed by an oral or a nasalized vowel, as in [zó] shame and [àɲàzíã́] tale, story.

4.2.65. '/r/' sounds.

There are two types of "/r/" sound in Adangme:

(i) an alveolar fricative [ɹ] involving incomplete contact of the front of the tongue with the alveolar ridge; it forms consonant clusters with alveolar [t], [d] and [z];

(ii) an alveolar flapped consonant which, for typographic convenience, is denoted by the usual I.P.A. symbol for a rolled alveolar consonant, [r]. Its production involves one contact of the front of the tongue with the alveolar ridge, and it forms consonant clusters with alveolar [n], and with post-alveolar [tʃ], [dʒ], [ɲ], [j] and [ʒ].

These two will be discussed in turn. The syllables they initiate are always open.

4.2.651. Clusters with [ɻ]:

(a) [tɻ-]

An alveolar [t], instead of the commoner dental or interdental [t], is used for this cluster. A comparison of pgm 7 for [tð] goat with pgm 32 for [tɻðó] to carry shows that the central contact for the latter is very far back on the alveolar ridge, hardly reaching as far forward as the Canine, whereas that of the former, as described in 4.2.23. above, covers the entire alveolar ridge. It will be noticed that pgm 32 also has a narrower wipe all round, due probably to the fact that the tongue is arched for the [-ɻ-] articulation.

The [ɻ] of such clusters is partially devoiced as is shown by segment P-T on kgm 56 for [tɻɔ], with simultaenous L and M tracings.

The [tɻ] cluster is immediately followed by only oral vowels, as in [tɻɔ] to get stuck and [tɻðó] to carry.

(b) [dɻ-]

This cluster is voiced, as can be seen on kgm 57 for [dɻá] with simultaneous L and N tracings. The cluster may be immediately followed by oral or nasalized vowels, as in [dɻá] to repair and [dɻǎ̀] to become limp.

The pgm wipe for [dɻ] is comparable to that of [nr] below.

(c) [zɻ-]

A comparison of pgm 28 for [záá] with pgm 29 for [zɻáá] shows that the wipes are almost identical. Both words mean slim.

The [zɹ] cluster is voiced, as is shown by the L tracing of kgm 58 for [zèzɹè] with simultaneous L and M tracings. It is immediately followed by only oral vowels, as in [zèzɹè] cactus.

4.2.652. Clusters with [r]:

(a) [nr-]

A comparison of pgm 33 for [nà] Narh with pgm 27 for [nra] shows that the latter has a backer alveolar wipe than does the former. This is probably due to the fact that the contact is made at such a point on the alveolar ridge as to facilitate a slight backward slide of the front of the tongue against the alveolar ridge which accompanies the articulation of the cluster. (Pgms made for the [dɹ] cluster but not reproduced here show similar differences between the wipes for [d] and for [dɹ].)

The [nr] cluster is voiced, as is shown by the L tracing of kgm 59 for [nra] with simultaneous L and M tracings. As the N tracing of kgm 84 for [nra] shows, [r] is nasalized in this context. The cluster is immediately followed by only oral vowels, as in [nra] to dream.

(b) [tʃr-]

On kgm 61 for [tʃrɔ] with simultaneous L and M tracings, the downward dip at Q appears to mark the alveolar flap or tap, [r], and is preceded and followed on the corresponding portion of the L tracing by regular wave forms. Since T marks the release of the affricate consonant and the segment T-Q is considerably longer than

the corresponding segment on kgm 60 for [tʃɔ], it would seem that [r̥] is partially devoiced in this cluster.

The cluster may be immediately followed by an oral or a nasalized vowel, as in [tʃrɔ] to lay one's head (e.g. on a pillow) and [tʃrɜ̀́] boil.

(c) [d3r-]

This cluster is voiced, as can be seen on the L tracing of kgm 62 for [d3rá] with simultaneous L and M tracings. The alveolar flap occurs at S, indicating that the word might in this case be transcribed [d3árá].

The cluster is commonly followed immediately by oral vowels, as in [d3rá] to rinse and [d3ró] to beg for. The only example in which a nasalized vowel has been found occurring immediately after this cluster is the Ga loan [gbɪ̀ d3rɜ̀] holiday or holy day. The borrowing of (Christian) religious terms from Ga is a common feature of Adangme; as there is no Adangme Bible, many Adangme Christians have recourse to the Ga Bible and also many non-Adangme-speaking Gas serve the Church in Adangme-speaking areas.

(d) [ɲr-]

A comparison of pgm 30 for [ɲà] mouth with pgm 31 for [ɲrã] shows that the former has a slightly wider wipe all round than does the latter; this difference might be attributed to the posture of the tongue for the [r] articulation (cp. pgms 33 and 27 for [nà] and [nra] respectively).

This cluster is also voiced, as is shown by the L tracing on kgm 63 for [ɲrã] with simultaneous L and N tracings. It will be

noticed that [r] has a nasal resonance in this context; cp. kgm 84 for [nra]. The [ɲr] cluster may be immediately followed by an oral or a nasalized vowel, as in [ɲróɲró] crisp and [ɲrã] to scrape off (molten substances).

(e) [ʃr-]

This cluster is also fully voiced, as is shown by the regular wave forms on the L tracing for the whole on kgm 75 for [ʃóʃróʃó] with simultaneous L and M tracings. The cluster is immediately followed by only oral vowels, as in [ʃóʃróʃó] to worry and [ʃrúúúú] icy cold.

(f) [ʒr-]

This cluster replaces [ʃr-] in emphatic articulations, and requires no further comment.

4.2.66. [ʒ] represents a voiced palatal fricative.

Pgm 26 for [ʒð] shows that there are wipes in the left, right and central zones. In the left zone the wipe extends from the Canine Line to the back and crosses the median line in numbered zone 4. In the right zone it extends from the First Pre-Molar to the back and crosses the median line in numbered zones 4,5 and 6. The contact is weak along the edges of the right zone, and the wipes on the central zone do not join up. These features denote the presence of gaps in the contact of the front of the tongue with the palate during the articulation of [ʒð].

A comparison of this pgm with pgm 24 for [ʃð] shows that the

latter has firmer and broader wipes, and also that the wipes extend farther forward in pgm 24 than in pgm 26.

[ʒ] occurs only where it replaces [j] in emphatic articulations. Like the latter, it occurs only syllable-initially and may be immediately followed by only oral vowels, as in [ʒð] <u>woman</u>.

4.2.67. [h] represents the aspirate. It gives no wipe on the palate. This sound often amounts to a voiceless version of whichever vowel follows it, there being friction both at the glottis and in the oral cavity in which the articulators are always in position for the following vowel. The inclusion of [h] under the consonants is motivated by the fact that its patterning in consonant-clusters depends on its place of articulation, as is the case with the other consonants. For this reason both [h] and the semi-vowels will be treated phonologically as C elements of structure (see 5.3. below).

On kgm 66 for [hã] with simultaneous L and N tracings, the portion preceding the onset of the [ã] articulation at X, and therefore corresponding to the [h] articulation, bears no wave forms on the L tracing. [h] is therefore voiceless in initial position. It is also voiceless in intervocalic position, as is shown by the segment Y-Z on kgm 67 for [kɔ̀ʕhã̀ʕ] with simultaneous L and N tracings. Its duration in this particular articulation is approximately 12 cs.

On sgm 40 for [ɔhé] incense, the segment Q-R corresponding to the [h] articulation has no voice bar. The fact that [h] generally amounts to a voiceless version of the vowel that follows it is illustrated here by the fact that F2, F3 and F4 of [-ɛ] begin during the [h] articulation. As shown by Potter et alia[11], the hub of [h] varies according to its environment. On sgm 40, the positive F2 transition of [o-] in fact rises from 1000 Hz to join up with the steady-state F2 of [-ɛ] at about 2750 Hz. It may be said therefore that [h] has no hub.

[h] occurs syllable-initially only and may be immediately followed by an oral or a nasalized vowel as in [kɔ̀ɔ́hìɔ̀] wind, air; [hã̀] charcoal.

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4.2.7. AFFRICATE CONSONANTS

There are two affricate consonants in Adangme. They are alveolo-palatal [tʃ] and [dʒ].

. . .

4.2.71. [tʃ] is a voiceless alveolo-palatal affricate.

Pgm 22 for [tʃo] tree shows that there are wipes in the left, right and central zones. In the left zone, the wipe extends from the Lateral Incisor Line to the back, and crosses the median line in numbered zones 3, 4 and 5. In the right zone, it extends

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11. Potter et alia (1947), p. 114; see also Lehiste (1964), pp. 144-5 where results of an experiment with syllables beginning with [h-] are tabulated and discussed.

from the Lateral Incisor to the back and crosses the median line in numbered zones 3, 4, 5 and 6. The wipe in the central zone joins up in numbered zones 3 and 4, but the contact is somewhat weak in the centre.

A comparison of this pgm with pgm 23 for [dʒ́] River Volta shows that the latter has slightly firmer contact and hence a darker wipe on the whole.

[tʃ] is a tip-down articulation.

On kgm 60 for [tʃɔ] to send with simultaneous L and M tracings, the absence of wave forms on the L tracing to the left of Q (the onset of the vocalic articulation) indicates that [tʃ] is voiceless. The duration of intervocalic [tʃ] on kgm 68 for [kùtʃá] with simultaneous L and M tracings, i.e. segment Q-R, is approximately 18 cs.

On sgm 41 for [àtʃú] "a personal name", the positive F2 transitions of both vowels both point to the 2750 Hz region. This is taken as the hub of [tʃ].

[tʃ] may therefore be briefly described as a voiceless alveolo-palatal affricate. It occurs only syllable-initially and may be immediately followed by an oral or a nasalized vowel, as in [kùtʃá] sponge and [tʃũ] building.

4.2.72. [d3] is a voiced alveolo-palatal affricate.

Pgm 23 for [dʒ́] shows that there are wipes in the left, right and central zones. In the left zone, the wipe extends from the Lateral Incisor Line to the back and crosses the median line in numbered zones 3, 4 and 5. In the right zone it extends from the Canine to the back and crosses the median line in numbered 3, 4, 5 and 6. The wipe in the central zone joins up in numbered zones 3 and 4 and the contact at the centre, though weak, is firmer than that observed for pgm 22 for [tʃo].

[d3] is a tip-down articulation.

On kgm 69 for [kɔ̀dʒ́] "a personal name", with simultaneous L and M tracings, the segment A-B corresponding to the [d3] articulation incorporates regular wave forms on the L tracing. [d3] is therefore voiced. Its duration in this particular articulation is approximately 15 cs.

On sgm 42 for [àd3à] "a chicken epidemic", the positive F2 transitions both point to 2750 Hz which is therefore taken as the hub of [d3]; this consonant thus has the same hub as [tʃ] with which it shares an alveolo-palatal place of articulation.

[d3] may therefore be briefly described as a voiced alveolo-palatal affricate. It occurs only syllable-initially, and may be immediately followed by an oral or a nasalized vowel, as in [dʒ́] River Volta and [dʒ̃ã̀] an equal in age.

4.2.8. SEMI-VOWELS

There are two semi-vowels in Adangme, namely [j] and [w]. The Krobo dialect, with which this thesis is not centrally concerned, has a third semi-vowel [ɥ], see Berry (1957).

The semi-vowels are treated alongside the consonants in this thesis because they pattern phonologically like the other consonants in selecting their second element when they appear in consonant clusters on the basis of their place of articulation (5.3.).

4.2.81. [j] represents a palatal semi-vowel.

Pgm 24 for [jɔ̀] shows that there are wipes in the left, right and central zones. In the left zone, the wipe extends from the Lateral Incisor Line to the back but is faint between the Lateral Incisor Line and the Canine Line. It crosses the median line in numbered zones 4, 5 and 6. In the right zone it extends from just above the Canine Line to the back, and crosses the median line in numbered zones 4, 5 and 6. The wipes in the central zone are very narrow and do not join up, thus indicating a wide gap between the centre of the tongue and the palate during the articulation of [jɔ̀].

[j] is a tip-down articulation.

On kgm 70 for [júmūū] with simultaneous L and N tracings, the onset of prominent wave forms on the N tracing at Q, corresponding to the beginning of the [-m-] articulation, is preceded on the L

tracing by regular wave forms of a long enough duration to indicate that the syllable [ju-] is voiced.

On sgm 43 for [a jɛ] their yam, the segment corresponding to the [j]articulation is not easily isolatable, but approximates to the segment X-Y. This segment has a voice bar, and F1 to F4 appear respectively at 450 Hz, 3000 Hz, 4250 Hz and 5250 Hz. The presence of the F2 and hub of [j] at 3000 Hz is confirmed by the positive F2 transitions of [a] and [ɛ] which join up with the F2 of [j].

The duration of [j] in this particular instance is approximately 22 cs.

[j] may therefore be briefly described as a palatal semi-vowel. It occurs syllable-initially only, and is immediately followed by oral vowels only, as in [jɔ̀] woman and [júmūū] black.

4.2.82. [w] represents a labial velar semi-vowel.

Pgm 25 for [wɔ̀] sea shows that there are small wipes in the left and right zones. They are virtually bisected by the Fourth Molar Line, and indicate that a direct palatogram, regrettably unavailable, would have shown wipes comparable to those observed for other labial velar consonants above (cp. pgm 10 and d. pgm 10).

On kgm 71 for [we] with simultaneous L and N tracings, the presence of regular wave forms on the L tracing for the whole word shows that both sounds are voiced; the faintness of the wave forms on the N tracing is a clue to their non-nasality.

On sgm 44 for [àwí] callousness, the segment Q-R roughly

corresponds to the [-w-] articulation and incorporates a voice bar. The negative F2 transitions of [a] and [i] not only point to, but join up at about 1000 Hz, thus indicating that the hub of [w] is at this frequency. The duration of [w] in this particular case is approximately 16 cs.

[w] may therefore be briefly described as a labial velar semi-vowel. It occurs syllable-initially only, and is commonly followed by oral vowels in Adangme, as in [wɔ̀] sea and [we] house. The only case in which it has been found to be followed immediately by nasalized vowels is in the loan word [wãĩ] wine or to wind, from English.

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4.2.9. Summary Statement on Adangme Consonant Hubs

As stated above, various acoustic phoneticians have shown experimentally that consonants that share a common place of articulation also share a common or nearly common locus. The figures obtained for the hubs of Adangme consonants are summarized below. They broadly conform to the pattern described above, the only exceptions being [k], [ɲ], [g], [ŋ], [h] and [ʔ] for which no hubs could be isolated. Also excluded from the list are [l] and [r] which are confined to consonant clusters and whose hubs cannot therefore be investigated independently of other consonants. Here are the consonants, grouped by place of articulation, and their hubs:-

Bilabial	[b]	2000 Hz
	[p], [m]	1250 Hz
Labio-dental	[f], [v]	1250 Hz
Inter-dental	[t]	2250 Hz
Alveolar	[d]	2250 Hz
	[n], [l], [l̥], [s], [z]	2000 Hz
Alveolo-palatal	[tʃ], [dʒ]	2750 Hz
Palatal	[j]	3000 Hz
Labial velar	[kp], [gb], [ŋm]	1000 Hz and 2000 Hz
	[w]	1000 Hz

4.2.10. Table of Adangme Consonant Sounds

(Brackets indicate sounds that occur only in emphatic speech; [h] has been put in the glottal column despite the fact that the friction that accompanies its articulation is in the oral cavity; this compromise is necessary because of the variability of the constriction for this friction.)

Manner of Articulation →

↓ Place of Artic-ulation	Plosive	Nasal	Lateral Fricative	Lateral	Flapped	Fricative	Affricate	Semi-Vowel
Bilabial	p, b	m						
Labio-dental						f, v		
Inter-dental	t							
Alveolar	d	n	(l̥)	l	r	s, z, ɹ		
Alveolo-palatal		ɲ					tʃ, dʒ	
Palatal						(ʒ)		j
Velar	k, g	ŋ						
Labial Velar	kp, gb	ŋm						w
Glottal	ʔ					h		

5. SYLLABLE STRUCTURE

5.1. The phonetic syllables of Adangme are set out in this chapter, and from an examination of these an attempt is made to formulate a statement about the phonological structure of the syllable in Adangme. The statement will be a comprehensive review of the syllable types found not only in Nouns and their Qualifiers which are central to the Nominal Piece, but in all word classes.

The phonetic syllable types found in singular words of varying structural complexity have been listed in 4.1.142. and these will be restated in terms of the phonological system proposed here in 5.4. below. The accompanying Tables A to D set out the phonetic syllables that have been encountered in Adangme words. No indication of tonal features has been given on the Tables; these will be dealt with in detail in Chapter 7.

Various apparent disparities in distribution arising from the Tables will be drawn on to justify a polysystemic approach[1] (as opposed to one overall monosystemic approach) to the phonological statement of the structure of the Adangme syllable. Attention will be focused mainly on the PRIMARY PATTERN[2] applicable to most syllable types, but mention will also be made of some syllable types that attract attention by exhibiting striking departures from the phonetic

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1. Firth (1948)b.

2. Henderson (1951), p. 132.

features common to the syllables occurring in most Adangme words (e.g. in having a [sr-] cluster instead of the commoner [sl-] one; or [kɹ-] instead of the commoner [kl-].) Such syllables occur in unassimilated loanwords for which a fragmentary SECONDARY PATTERN[2] might be set up; they are excluded from the Tables presented below, and will be discussed in 5.5.

Those syllables occurring only in Personal and Place Names, Phonoaesthetic words, Onomatopes, Exclamatives and assimilated Loanwords have been duly marked on Tables A, B and C and may be commented on as follows:

(a) Personal and Place Names can be easily identified on contextual evidence;

(b) Phonoaesthetic words, Onomatopes and Exclamatives are identifiable on syntactical and stylistic grounds (e.g. onomatopes replace many ordinary words when adults talk to infants and babies);

(c) Assimilated loanwords are identified as such in those cases where the present writer has some acquaintance with the source language concerned. (Puplampu[3] lists loanwords from English, Portuguese, Dutch and Latin, but none from Ghanaian languages such as Ga, Twi and Ewe. Some of his illustrations are better attested than others, e.g. gaas from English gas as opposed to samfle from Latin fenestra).

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2. Henderson (1951), p. 132.

3. (1953), pp. 58-61.

In conversations among Adangme-speakers who speak other languages such as English or Ewe, it is common to find very many foreign words occurring in an otherwise wholly Adangme dialogue; such foreign words on the whole retain the form in which they normally occur in the language concerned when those people speak it. It is not felt desirable to treat such words as loanwords, and they are excluded from the discussion on that account.

Though [m] may constitute a phonetic syllable alone (4.1.111.), all Adangme syllables are considered here to be phonologically open. The terms vowel and consonant and their derivatives are used throughout the thesis to refer to phonetic units, the corresponding phonological units being labelled V and C elements of structure. One-place[4] Adangme syllables consist of a V element only, whilst two place ones consist of a C element followed by a V element.

TABLE A sets out those one-place syllables in which Vs occurs as

(a) monosyllabic words;

(b) initial Vs of polysyllabic words; and

(c) non-initial Vs in intra-word vowel sequences (4.1.141.)

TABLE B sets out syllables with consonantal onsets that are not modified by a liquid (i.e. simple onsets).

TABLE C sets out syllables with consonantal onsets modified by a liquid (i.e. complex onsets).

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4. Firth and Rogers (1937), p. 1059.

TABLE D presents the consonant sounds and consonant clusters by place of articulation and by voicing (voicing, that is, of the initial sound in the case of clusters), and also supplies a list of those vowels (if any) with which each does NOT occur.

In the polysystemic approach to phonology adopted here, the phonemes of monosystemic phonology are replaced by phonematic units and prosodies. Phonematic units account for those elements of structure that are best referable to paradigmatic places[5], whilst prosodies account for those elements of structure whose phonetic exponents extend beyond one place. V and C elements of structure are therefore generalized phonological units which may be expanded into approrpiate phonematic units and prosodies.

5.2. and 5.3. deal respectively with V and C elements of structure; 5.4. deals with syllable prosodies and with an illustration of how these phonological units may be related to various word structures and to the singular-plural opposition in Nouns of the classes established in 3.3.23. 5.5. deals with loanwords.

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5. Firth and Rogers (1937), p. 1059.

TABLE A - Phonetic Syllables (Vowels only)

	ɪ	i	e	ɛ	ɛ	ɐ	a	ɔ	ɜ	o	u	ʊ
Monosyllabic Words	0	-	-	-	-	-	-	-	-	-	*	*
Initial V - of Polysyllabic words	0	0	-	0	*	-	-	0	-	-	0	0
Non-Initial V of intra-word V Sequence	-	-	-	-	-	-	-	-	-	-	-	-

* Found in exclamatives only.

- Found in other words.

0 Not found; blank.

TABLE B - Phonetic Syllables (with Simple Onsets Only)

	ɪ	i	e	ɛ̃	ɛ	ã	a	ɔ	ɜ	o	u	ũ
p	-	-	-	*	-	-	-	-	-	-	-	-
b	0	-	-	-	-	-	-	-	-	-	-	-
t	-	-	-	-	-	-	-	-	-	-	-	-
d	-	-	-	-	-	-	-	-	-	-	-	-
k	-	-	-	-	-	-	-	-	-	-	-	-
g	0	-	-	-	-	-	-	-	-	-	-	-
kp	-	-	-	-	-	-	-	-	-	-	-	0
gb	-	-	-	*	-	-	-	-	*	-	-	*
m	-	-	-	-	-	-	-	-	-	-	-	-
n	-	-	-	-	-	-	-	-	-	-	-	-
ɲ	-	0	-	-	-	-	-	0	-	0	-	-
ŋ	0	0	0	-	-	-	-	-	-	-	-	-
ŋm	-	-	-	-	-	-	-	-	-	-	-	0
l	0	-	-	0	-	*	-	-	*	-	-	0
l̩	0	-	-	0	-	-	-	-	-	-	-	-
f	-	-	*	-	-	-	-	-	-	-	*	-
v	0	-	-	0	0	-	0	-	0	-	-	-
s	-	-	-	-	-	-	-	-	-	-	-	-
z	-	-	-	0	0	-	-	-	0	-	*	-
ʒ	0	-	-	0	-	0	-	-	0	-	-	0
h	-	-	-	-	-	-	-	-	-	-	-	-

tʃ	-	-	-	-	-	-	-	-	-	-	-	-
d3	-	-	-	-	-	-	-	-	-	-	-	-
j	0	-	-	0	-	0	-	-	0	-	-	0
w	0	-	-	0	-	*	-	-	0	-	-	0

* Found only in Personal and Place Names, Exclamatives, Phonaesthetic words, Assimilated loans, Onomatopes, etc.

\- Found in other words.

0 Not found in any word; blank.

TABLE C - Phonetic Syllables (with Complex Onsets Only).

	ɪ	i	e	ɛ̃	ɛ	æ̃	a	ɔ	ɜ	o	u	ʊ
pl	0	0	-	-	-	-	-	-	*	-	*	0
bl	0	-	-	0	-	*	-	-	0	-	-	0
tɹ	0	-	-	0	-	0	-	-	-	-	-	0
dɹ	0	0	0	*	-	0	-	*	-	-	0	0
kl	0	-	-	-	-	-	-	-	-	-	*	0
gl	0	-	*	-	0	-	*	0	0	0	0	0
kpl	*	-	-	-	-	-	-	-	-	-	-	0
gbl	-	-	-	*	-	*	-	-	0	0	*	0
ml	0	*	-	-	0	-	-	-	0	-	-	0
nr	0	0	0	0	-	0	-	0	0	0	0	0
ɲr	0	0	*	-	0	-	0	0	0	*	0	0
ŋl	0	-	*	-	0	-	-	0	0	-	0	0
ŋml	0	-	-	-	-	-	-	-	0	*	0	0
fl	0	-	0	-	-	-	-	-	-	-	-	0
vl	0	0	0	0	0	0	*	0	0	0	*	0
sl	0	-	-	*	-	-	-	-	0	-	0	0
zɹ	0	0	-	0	0	0	-	0	0	0	0	0
ʒr	0	0	0	0	-	0	0	0	0	-	-	0
hl	0	-	-	0	-	-	-	-	-	-	-	-
tʃr	0	*	-	-	-	0	-	-	-	-	-	0
dʒr	0	-	0	0	-	0	-	0	*	-	0	0

jr	0	0	0	0	-	0	0	0	0	-	-	0
wl	0	0	0	0	-	0	-	-	0	0	-	0

* Found only in Personal and Place Names, Exclamatives, Phonaesthetic words, Assimilated loanwords, Onomatopes, etc.

\- Found in other words.

0 Not found in any word; blank.

TABLE D - Consonants grouped by place of articulation and by voicing, with a list of vowels (if any) with which each consonant does NOT occur.

Simple Onsets		Complex Onsets	
Bilabial			
p -	b: ɪ	pl: ɪiŭ	bl: ɪɛɜŭ
	m -		ml: ɪɛoŭ
Labio-dental			
f -	v: ɛɛaɜ	fl: ɪeŭ	vl: ɪieɛɛʌɔɜoŭ
Dental and Alveolar			
t -	d -	tɻ: ɪɛɜŭ	d : ɪieʌuŭ
	n -		nr: ɪieɛʌɔɜouŭ
ɬ: ɪɛ	l ɪɛŭ		
s -	z ɛɛɜ	sl: ɪɜŭ	z : ɪiɛɛʌɔɜoŭ
Alveolo-palatal			
tʃ -	dʒ -	tʃr: ɪʌŭ	dʒr: ɪeɛʌɔuŭ
Palatal			
	ɲ: iɔɔ		ɲr: ɪiɛaɔɜuŭ
	ʒ, j: ɪɛɜʌŭ		ʒr, jr: ɪieɛʌaɜuŭ
Velar			
k -	g: ɪ	kl: ɪŭ	gl: ɪɛɔɜouŭ
	ŋ: ɪie		ŋl: ɪɛɔɜuŭ

Labial Velar	
kp: ◻ gb -	kpl: ◻ gbl: o◻
ŋm: ◻	ŋml: ◻◻
w: ◻◻◻	wl: ◻◻◻◻◻
Glottal	
h -	hl: ◻◻

Those general features of the Tables that require attention at the phonological level are summarized below. These are:

1) There are fewer nasalized vowels than oral ones, i.e. 5 nasalized as opposed to 7 oral ones, only the two half-close vowels not having a nasalized vowel articulatorily close to them. This factor has obvious repercussions on the abstraction of V elements of structure and on the assignment of prosodies to syllables.

2) In one-place syllables, vowels occur with greater freedom as non-initial vowels of intra-word vowel sequences (4.1.141.) than they do in other permitted environments, the severest restrictions being in initial V place of polysyllabic words, where only 6 — 4 of them oral — out of the theoretical maximum of 12 occur.

3) In two-place syllables, oral vowels have greater privileges of occurence than do nasalized ones, the respective average figures being (a) for the simple onset (Table B) type 23.3 and 19.6 out of a theoretical maximum of 25 and (b) for the complex onset (Table C) type 15.6 and 7.6 out of a theoretical maximum of 23.

4) Each vowel occurs in more simple onset syllables than in complex onset ones, the two extremes being 19 and 1 for [ɑ], and 24 and 20 for [a].

5) The most striking phonetic feature of the consonantal onsets is the presence or absence of a liquid modification (or consonant cluster). Its primacy in the phonological statement put forward in

5.3. is anticipated in the lay-out of the Tables.

6) Simple onset syllables have fewer blanks than do complex ones, the respective figures being 36 out of a theoretical maximum of 300, as opposed to 125 out of a theoretical maximum of 276, i.e. 12 per cent and 46 per cent.

7) Complex onset syllables claim more phonaesthetic etc. words than do simple onset ones, i.e. 23 as against 11.

8) Out of a theoretical maximum of 12 vowels, the consonants by manner of articulation occur with the following number per Simple and Complex syllable onsets:

	Plosives	Nasals	Laterals	Fricatives	Affricates	Semi-Vowels
Spl.	11.9	10.6	9.5	10	12	7.5
Cpx.	8.5	5.6	-	6	7	3.5

9) Semi-vowels pattern more like C than like V and are considered here as C elements of structure, especially on account of their liquid modification pattern (5.3.).

10) There are fewer voiced consonants than voiceless ones.

11) Voiced onsets account for more blanks (cf. Table D) than do voiceless ones, the respective figures being 33 and 3 for Simple onset syllables and 103 and 22 for Complex onset syllables.

General features 1 to 3 may be construed as being concerned with nasality in vowels, and the rest as being concerned with the following consonantal features: 4-9 with the simple onset versus complex onset opposition, and 10 and 11 with the voiced versus voiceless opposition.

These will be examined with reference to the possibility of expanding the V and C elements of structure and of relating the phonological formulation to the grammatical structure.

5.2. V Elements of structure.

General features 1 to 3 suggest that vowel nasality could usefully be accounted for by a phonological formulation of V elements of structure. As will be shown in 6.3., nasalization — i.e. the phonological abstraction from phonetic nasality — is fundamental to the grammaticl structure of NPs consisting of a nominal and a definite article, illustrative examples being:

ta	a	the war
tà	ã	the palm tree
bɔ́	ɔ	the dew
bɔ̃́	ɔ̃	the (tribal) facial mark
àgbò	ɔ	the big one
gbé	ɔ	the dog

Nasalization is also fundamental to the structure of adjectives synchronically derived from verbs (6.3.), illustrative examples being:

sà	to sieve	sàsɛ̀ɛ́	sieved
sã̀	to toast	sã̀sɛ̃̀ɛ̃́	toasted

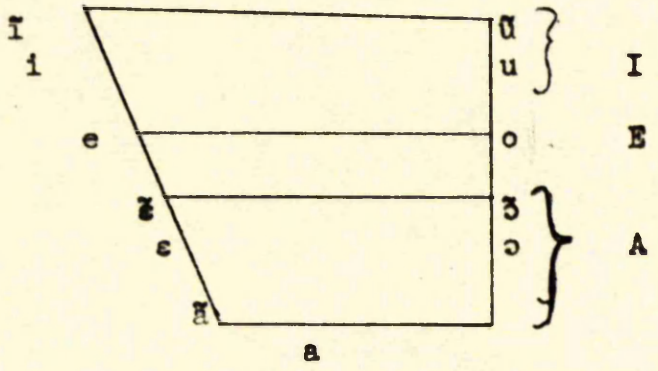
as in:

mãmú	sàsɛ̀ɛ́	sieved grain powder.

and in

àmáàáá sàsàá toasted plantain

These considerations prompt the separation of the two half-close (oral) vowels from the rest of the vowels. The varying degrees of articulatory closure that, on the one hand, typify the vowels with closer tongue positions than these two and, on the other hand, typify those vowels with more open tongue positions suggest a tripartite division of the Vowel Chart, three phonematic units I E and A being abstracted to cover the V elements of structure, thus:



Syllable prosodies will be discussed in 5.4. below.

To the specific feature described in general feature 2 above, the prosodic approach to phonology has an effective answer in establishing different phonological systems for different places in structure, hence the apparent disparity in the distribution of vowels raises no problem. The three phonematic units have the following among their phonetic exponents:

I - a close tongue position and vocalic articulation;

E - a half-close tongue position and vocalic articulation;

A - a half-open or open tongue position and vocalic articulation.

Together, they cover the following:

(a) a 12-term V system in two-place syllables (Tables B and C);

(b) a 12-term V system in one-place syllables of the third type (Table A);

(c) an 11-term V system in one-place syllable of the first type (Table A).

The six-term V system of one-place syllables of the second type on Table A are covered by the two phonematic units E and A.

The use of similar symbols for these different V systems is not meant to suggest necessarily that there is any one-to-one correspondence between the elements of structure of one system and those of another, for no arithmetical equivalence can be established between one term in a 6-term system and one term in a 12-term system; the two, to use De Saussure's term, have a different <u>valeur</u> each and cannot be equated. This formulation is adopted because it allows for a fair amount of convergence of the phonetic exponents of the phonological categories belonging to different systems with different numbers of terms, whilst at the same time ruling out the undesirable divergence of the phonetic exponents of the same phonological elements[6]. The burden of further differentiation will be borne by the prosodic systems established later in 5.4.

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6. cf. Henderson (1966), p. 179.

5.3. C Elements of Structure

As general features 4 to 9 show, the major dividing line between consonantal onsets is the simple-complex one. (The distribution of the liquids in complex onsets has already been described in 4.2.51.) Table D confirms this. This feature could usefully have been made the basis of a phonological statement, an additional reason being the structure of adjectives synchronically derived from verbs having complex onsets, as in:

blí	to open	bíblí	open
gbla	to pull	gblagblá	pullable
gblí	to get dry	gbígblí	dry, dried

as used in

sínà	bíblí	open door
klámá	gblagblá	machine that can be pulled
bà	gbígblí	dried leaf

As the three derived adjectives show, some adjectives retain the complex onset in both syllables, whilst others do so only in their second syllables. Such structures will be more fully dealt with in 6.3. below.

Unlike the simple onset - complex onset opposition, the voiced versus voiceless onset opposition (cf. general features 10 and 11) affords no parallels with grammatical structure and provides no basis for the abstraction of phonological categories. The above exhausts the general features listed earlier.

It is proposed to go no further in establishing C elements of structure than to abstract an $1/\overline{1}$ syllable prosody for two-place syllables, so that simple onset syllables will be deemed to have the generalized structure $\overline{1}(CV)$ and complex onset syllables the structure $1(CV)$. Other syllable prosodies are discussed in 5.4. below.

If the V elements of structure are taken into account, this means that Adangme syllables are of such structures as $1(CI)$, $\overline{1}(CA)$, $\overline{1}(CE)$ etc., the $1/\overline{1}$ symbol always being written to the left of the phonematic units of the syllable concerned. It is felt that this formulation reflects the structure of the syllables concerned, the lack of phonological distinction between voiced and voiceless onsets being further justified in $1(CV)$ syllables by the fact that the liquid element of consonant clusters are only partially devoiced when they occur after voiceless consonants (see 4.2.511. and 4.2.65.).

5.4.1. SYLLABLE PROSODIES

To complete the phonological analysis of the Adangme syllable, the phonematic units C I E A abstracted earlier have to be assigned prosodies. One syllable prosody $-1/\overline{1}-$ has already been abstracted. Others, apart from $n/\overline{n}$ for nasalization which is to be dealt with in the next chapter, will now be abstracted to account for features of the grammatical structure such as the relation of singular nominal forms to their plural congeners, examples being:

nɔ̃mlɔ	person	nɪ̃mli	people
jɔ̀mójɔ́	old lady	jɪ̀mówí	old ladies
àgbɔ̀	big (sg.)	àgbɔ̀hĩ	big (pl.)

and also the structure of adjectives synchronically derived from verbs, examples being:

tí	to be thick	títí	thick
sa	to get rotten	sasé	rotten
gbó	to die	gbógbóé	dead

Three prosodies "y" "w" and "ɵ" are needed to account for these and they have the following among their phonetic exponents:

y - lip spreading for the syllable as a whole;

w - lip rounding for the syllable as a whole;

ɵ - neutral lip opening for the syllable as a whole.

Superscript symbols will be used for these, so that Adangme syllables have phonological structures such as

$$(V)^{ɵ},\ l(CI)^{y},\ \bar{I}(CA)^{ɵ},\ \bar{I}(CI)^{w},\ l(CE)^{w},\ \text{etc.}$$

In the illustrations which follow, each syllable will be bracketed and its prosodies duly indicated, whether or not contiguous syllables have the same prosodies. Spacing will, as in the ordinary orthography, be used to indicate word division. This definitive use of brackets — or, alternatively as in 6.3. below, the use of syllabics — has the advantage of specifying which commutational systems are independent and which are not, so that where there is an automatic choice of V or C element, as is the case respectively in nominal and definite article constructions and

in the synchronically derived adjectives referred to above, it is possible to use the phonological notation to illustrate aspects of the grammatical structure.

5.4.2. The phonematic units and prosodies set up thus far will now be used to illustrate the structure of a variety of word structures (5.4.21.) and some singular-plural nominal forms (5.4.22.); and finally the fact that the above treatment does not exhaust all the possibilities will be underlined by a brief discussion of the glottal prosody (5.4.23.)

5.4.21. Word Structures

A variety of phonetic syllables found in words of varying syllabic type was outlined in 4.1.142. Here now is a phonological formulation of some of these word structures.

Monosyllables:

Word	Meaning	Phonological Notation
blɔ	way	$1(CA)^{W}$
bà	leaf	$\bar{1}(CA)^{\bullet}$

Dissyllables:

ánɔ̀	oat	$(A)^{\bullet}\bar{1}(CA)^{W}$
bàbà	white ant	$\bar{1}(CA)^{\circ}\bar{1}(CA)^{\bullet}$
flákú	porridge	$1(CA)^{\bullet}\bar{1}(CI)^{W}$

Word	Meaning	Phonological Notation
Trisyllabic words:		
àblàɛ́	butterfly	(A)•l(CA)ʸ(A)ʸ
bupukú	dust	Ī(CI)ᵂĪ(CI)ᵂĪ(CI)ᵂ
àkpásà	deck chair	(A)°Ī(CA)°Ī(CA)•
4-syllable words:		
àtɛ́plàɛ́	cockroach	(A)°Ī(CA)ʸl(CA)ʸ(A)ʸ
ɔgbètɛ̀ɛ́	wolf	(E)ᵂĪ(CE)ʸĪ(CE)ʸ(E)ʸ
kɔ́ɔ̀pɔ́ɔ́	cup	Ī(CA)ᵂ(A)ᵂĪ(CE)ᵂ(E)ᵂ
5-syllable words:		
àdɔ̀dɔ̀ŋmàtʃɪ́	wasp	(A)•Ī(CE)ᵂĪ(CE)ᵂĪ(CA)•Ī(CI)ʸ
àbɔ̀sɪ́ɛ́mɪ́	Satan	(A)•Ī(CE)ᵂĪ(CI)ʸ(A)•Ī(CI)ʸ

No 6-syllable words have been encountered, and the only other syllabic word structure encountered which is not covered above is the 7-syllable word:

álùgùútùgùú	the sour sop fruit	(A)°Ī(CI)ᵂĪ(CI)ᵂ(I)ᵂĪ(CI)ᵂ— Ī(CI)ᵂ(I)ᵂ

5.4.22. Singular and Plural Nominals

3.3.23. was concerned with establishing sub-divisions of the noun word class on grammatical grounds. The structure of these noun sub-classes will now be stated phonologically. These examples do not exhaust those given in 3.2.23.

Noun	Meaning	Phonological Notation
Sub-class 1:		
nūbuɔ	guest	$\bar{I}(CI)^{w}\bar{I}(CI)^{w}(A)^{w}$
nūbuɔhĭ	guests	$\bar{I}(CI)^{w}\bar{I}(CI)^{w}(A)^{w}\bar{I}(CI)^{y}$
tʃɛ	father	$\bar{I}(CA)^{y}$
tʃɛmĕ	fathers	$\bar{I}(CA)^{y}\bar{I}(CA)^{y}$
Sub-class 2:		
nɜ̃mlɔ	person	$\bar{I}(CA)^{w}l(CA)^{w}$
nĭmli	persons	$\bar{I}(CI)^{y}l(CI)^{y}$
jɔ̀mɔ́jɔ́	old lady	$\bar{I}(CE)^{w}\bar{I}(CE)^{w}\bar{I}(CE)^{w}$
jɪ̀mɔ́wí	old ladies	$\bar{I}(CI)^{y}\bar{I}(CE)^{w}\bar{I}(CI)^{y}$
ɔ̀hɔ̀ŭ̀ɛ̀nɔ̀	Eweman	$(E)^{w}\bar{I}(CI)^{w}(A)^{y}\bar{I}(CE)^{w}$
ɔ̀hɔ̀ŭ̀ɛ̀li	Ewe people	$(E)^{w}\bar{I}(CI)^{w}(A)^{y}\bar{I}(CI)^{y}$
sɜ̃lɔ	blacksmith	$\bar{I}(CA)^{w}\bar{I}(CA)^{w}$
sɜ̃li	blacksmiths	$\bar{I}(CA)^{w}\bar{I}(CI)^{y}$
ɔ̀hɔ̀ŭ̀ɛ̀jɔ̀	Ewe woman	$(E)^{w}\bar{I}(CI)^{w}(A)^{y}\bar{I}(CE)^{w}$
ɔ̀hɔ̀ŭ̀ɛ̀jɪ̀	Ewe women	$(E)^{w}\bar{I}(CI)^{w}(A)^{y}\bar{I}(CI)^{y}$
Sub-class 3 (invariable nouns)		
ŋɔ̀	salt	$\bar{I}(CE)^{w}$
nĭ̀méli	ancestors	$\bar{I}(CI)^{y}\bar{I}(CE)^{y}\bar{I}(CI)^{y}$

The three synchronically derived adjectives of 5.4.1. may be assigned the following phonological structures:

títí	thick	$\bar{I}(CI)^{y}\bar{I}(CI)^{y}$

sasέ	rotten	$\bar{I}(CA)^{\bullet}\bar{I}(CA)^{y}$
gbógbóé	dead	$\bar{I}(CE)^{w}\bar{I}(CE)^{w}(E)^{y}$

5.4.23. Glottal Prosody

Of the four environments specified for the glottal stop in 4.2.29. above, only the first (i.e. its use in emphatic speech to separate contiguous V-final and V-initial sounds) impinges directly on the internal relation of elements of NP structure. It is quite certain that in any prosodic study of speech tempo in Adangme it would be desirable to postulate a glottal prosody as a junctural feature of word division in slow emphatic speech. This, however, cannot be gone into in further detail here; all it is proposed to do is to suggest how the above-described phonological formulae might be used to describe the syllable structure of the three examples cited on kgms 37, 38 and 39 in 4.2.29; they all mean big stone.

Phonetic Transcription	Phonological Structure
tɛ̀ɛ̀gbɔ̀	$\bar{I}(CA)^{\bullet}(A)^{\bullet}\bar{I}(CE)^{w}$
tɛ́ ɛ̀gbɔ̀	$\bar{I}(CA)^{y}(A)^{\bullet}\bar{I}(CE)^{w}$
tɛ́ʔ ɛ̀gbɔ̀	$[\bar{I}(CA)^{y}]^{?}\ [(A)^{\bullet}\bar{I}(CE)^{w}]$

Among the phonetic exponents of "ʔ" may be mentioned very tense articulation of the words encompassing it and, of course, a period of glottal closure.

One more prosody, that of nasalization, is yet to be discussed (see Chapter 6).

5.5.1. Loanwords in Adangme.

The discussion of loanwords has to be exploratory and tentative since the present author cannot claim enough acquaintance with all the source languages concerned[7] to make an exhaustive study of loanwords in Adangme at this stage. In particular, it is regretted that it is not possible to attest and discuss a wider range of loanwords from other Ghanaian languages; of these there must be many. It is felt, nonetheless, that there are enough immediately striking features in such loanwords as can readily be isolated to warrant an exploratory discussion of the subject here.

This brief investigation confirms the findings of previous studies of loanwords[8], that is that some loanwords quickly become absorbed into the primary indigenous linguistic system, while others maintain features that exclude them from the primary system and for which, if desired, a secondary system can be established. The loanwords isolated from Adangme will be grouped below with regard to which (if any) of the four features of Adangme syllable structure summarized below they do not exhibit. No attempt will be made to establish a secondary phonological pattern for those loanwords

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7. cf. Duplampu (1953), pp. 58-61 where there are citations from English, Dutch, Portuguese and Latin but none from other Ghanaian languages. Irvine (1961) lists some loans from Twi and Ewe.

8. Henderson, (1951).; The phonetic changes involved in "absorption" are interesting but will not be discussed here.

that require such a system because it is felt that a larger corpus and an acquaintance with a larger number of source languages would be needed to make such a statement worthwhile.

Some of the main features of the syllable structure of Adangme as described above may be summarized as:

1. Open syllables, types being (V), l(CV) and $\bar{I}$(CV).
2. Severe restrictions on which vowels may occur as V- of polysyllabic words, and on the distribution of nasalized vowels.
3. The C system of $\bar{I}$(CV) syllables is a 25-term system.
4. Distribution of the liquids in l(CV) syllables.

Most loanwords have tonal patterns that are found in indigenous Adangme words. A few, however, exhibit special tonal patterns. These will be commented on in Chapter 7.

5.5.2. Assimilated Loanwords

Some loanwords have been completely absorbed into the Adangme phonological system and can therefore be identified only through a knowledge of the source language. It will be noticed that various changes in the lexical range of the items often accompany the borrowing process. Below is a sample of those absorbed loanwords that have been encountered. They are grouped according to the source languages concerned:-

. . .

5.2.21. Loans from Ga:

Word	Meaning in Adangme	Original Word	Original Meaning
fùfɔ́	cow's milk	fùfɔ́	(any) milk
gbùúlɛ	vaccination, injection	gbùúlɛ	vaccination, injection

. . .

5.5.22. Loans from French:

tàbá	tobacco leaves for pipe smokers	tabac	tobacco
súklɛ̀ / síklɛ̀	sugar	sucre	sugar

. . .

5.5.23. Loans from English:

Word	Meaning in Adangme	Original meaning
pépà	paper	paper
tɛ́ŋasè	sanitary worker	Town Council
pɔ́ɔ̀	pound sterling	pound sterling or avoirdupois
kɔ́ŋnɛ̀	corner	corner
kákɔ̀	cork	cork
páúdà	talcum powder	powder (general)
ŋlèésì	English (not the language)	English
dɔ́kítà	doctor; (any) hospital-type health consultant	doctor
sɛ́mɛ̀	to sue	to summon
tɔ́kɛ̀	to grumble, to chuckle	to talk
hɔ́lɛ̀	to hurry	to hurry
fáí	to fine	to fine
wáí	to wind	to wind

The last five are the only Adangme verbs that appear to be attested loans. One striking feature of this set is the uniformity of their tonal structure; there are dissyllabic verbs in Adangme evincing this tonal pattern as well as other tonal patterns.

The last two have homophonous (borrowed) forms in Adangme which mean fine (adjective) and wine (noun) respectively.

The last one, incidentally, exhibits an unusual phonological structure (this is the only word encountered having a semi-vowel followed by a nasalized vowel) and should have been included in 5.5.31. below; it is inserted above alongside the other verbs for convenience.

Since all the above, except of course the last example, conform with the primary phonological pattern of Adangme, their syllable structures can be formulated in the same way as was done for indigenous Adangme words in 5.4.; e.g.

[pépà] has the phonological structure $\overline{1}(CE)^{y}\overline{1}(CA)^{\circ}$.

5.5.3. Unassimilated Loanwords.

The rest of the loanwords we shall discuss depart from the primary phonological pattern of Adangme in a variety of respects. They will be grouped and discussed according to the source languages concerned. Only those cited for English represent a sample; the others are all that have been isolated for the languages concerned. Finally there is a set of two words whose source, if indeed they are loans, cannot be traced by the present

writer but which exhibit structures foreign to the primary Adangme pattern (5.5.35.).

Those (unassimilated) loans which have un-Adangme clusters or un-Adangme initial vowels were, of course, excluded from Tables A-D above.

5.5.31. Unassimilated loans from Ga

Word	Meaning in Adangme	Original Meaning
sríkɪ́	silk	silk
gbɪ̀ d3rɛ̀	holy day, holiday	holy day, holiday
kɔ̃ŋkɔ̃ŋ	holy	holy
ŋkáklá	light soup	light soup
kɛ̀ntó	~~shin~~ sheen of leg	~~shin~~ sheen of leg
pɛ̀mplɔ̀ó	bamboo	bamboo
sɛ̀ŋkʊ́	(musical) organ	(musical) organ

The first item has an un-Adangme cluster, the usual one being [sl]. The word appears to have been borrowed by Ga from English.

The second item is unique in having a nasalized vowel following the (usual) Adangme [d3r] cluster.

The third item has a syllable structure that differs from the primary Adangme pattern in two respects: a [kɔ] cluster instead of the usual [kl] one, and a closed syllable.

The rest have an un-Adangme nasal-plus-plosive consonant sequence which occurs often in Ga and Twi.

5.5.32. An Unassimilated loan from French

The word [lɛ̀mpɔ́ɔ̀] appears to have been borrowed from French l'impôt meaning tax. It means local or district levy in Adangme, and has an [m] in an un-Adangme environment.

5.5.33. Unassimilated loans from English

These can be grouped according to the feature that sets their phonological structure apart from the primary Adangme system. The first item has a unique initial vowel; the second item has a closed syllable; the next two have unusual consonant sequences but open syllables; and the rest have closed syllables and/or unusual consonant sequences.

Word	Meaning in Adangme	Original Meaning
ɛ́lɔ́plɛ̀ɛ́ɛ̀	aeroplane	aeroplane
blɛ̀ɛ́ɛ̀d	razor blade	blade
stáátɛ̀	starch	starch
skɔ́lɛ̀	educated person	scholar
méɛ̀t	driver's mate	mate
sákɛ̀s	scissors	scissors
skúùl	school	school
kɔ́bɔ̀d	cupboard	cupboard
díɛ̀tʃ	motor accident	ditch
hɔ́spɛ̀tɛ̀	hospital, dispensary, health centre	hospital
páɛ̀p	pipe-borne water tap	pipe

Word	Meaning in Adangme	Original Meaning
sìmfìt	cement	cement
kɔ̀bɔ́f	curve	curve

One further comment is necessary, and this applies to the consonant-final loanwords in the list given above. They generally occur in the forms cited when they are not followed in the same sentence by a vowel-initial or a V syllable. But when they are so followed, they often end in a close V element - i.e. [i] or [u] depending on whether the vowel in the preceding syllable is a front or back vowel. The realization of this vowel varies from speaker to speaker and even, for the same speaker, from occasion to occasion. This phenomenon is somewhat similar to the one discussed in 4.2.311. above but in this case the syllables cannot be considered as being phonologically open since the (phonetic) consonants involved do not exhibit this feature regularly in all words in which they appear. An example of the use of such words is:

sákìs	scissors
sákìsì ɔ	the pair of scissors
sákìsì àgbɔ̀	a big pair of scissors

or, less commonly,

sákìs àgbɔ̀	a big pair of scissors.

5.5.34. An Unassimilated loan from Twi.

The personal name [oforí] seems to have been borrowed from Twi, a language containing many words with the syllable structure [rV]. The word differs from the primary Adangme pattern in having an unusual onset in its final syllable. On the extra-linguistic plane, it is significant that there are far more Twi-speakers called Ofori than there are Adangme-speakers with that name. The word is pronounced [ofolí] by most monolingual Adangmes.

5.5.35. Finally, there are two words which very much resemble in structure some of the unassimilated loans from Ga cited in 5.5.31. but which do not occur in that language. Their phonological structure excludes them from the primary pattern of course, and all that will be done at this stage is to list them.

àsáŋkú	an edible paste made from fermented plantain
àtáŋkle	fried bean balls

6. NASALIZATION IN ADANGME NPS

6.1. Nasalization is a phonological term that roughly corresponds at the phonetic level to nasality in speech sounds. The purpose of this chapter is to formulate a phonological statement on nasalization in selected NPs so as to show that "the silent and unpronounceable abstractions of phonology"[1] can be used to relate phonetic phenomena to the grammatical statement. The grammatical structures selected for the purpose are the following:

(a) NPs comprising a nominal and a definite article (2.11., 5.2.); and

(b) Adjectives that are synchronically derived from a variety of verb stems (2.9.2., 5.2., 5.3., and 5.4.1.)

These have been selected because their structure involves certain automatic choices of V and C elements and it is desired to use the phonological formulation proposed below to illuminate this aspect of the grammatical structure of Adangme, thus bringing out similarities in structures that superficially look different at the phonetic level. The phonological system employed below enlarges upon the phonematic units and prosodies established and illustrated in Chapter 5 above.

A discussion of the tonal features of these structures will be found in Chapter 7 below.

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1. Carnochan (1960), p. 156.

6.2.1. The Phonetic Phenomena

Ample evidence was given in Chapter 4 above on the freedom with which nasal consonants may be immediately followed by nasalized or by oral vowels, and with which non-nasal consonants may be similarly followed, examples being

nã̀ , nà ; tã̀ , ta ;

gbĩ̀, kpĩ̀; ɲrã, dáá.

Kymograms of these and of an additional example show the following features[2] :

(a) Kgms 7 and 10 for [nã̀] and [nà]: in the first wave forms persist on the N tracing all through the word while on the second they show a sudden diminution at Z. [nã̀] is clearly more nasalized that [nà].

(b) Kgms 6 and 8 for [tã̀] and [ta]: there is a big difference in the wave forms in the N tracings starting respectively at X and Q. [tã̀] is therefore more nasalized than [ta].

(c) Kgms 72 and 73 for [gbĩ̀] and [kpĩ̀]: both of these show nasality on the vowels; the former has, in addition, faint wave-forms on the N tracing caused by bone conduction during the labial velar closure for voiced [gb].

(d) Kgm 74 for [è sí] shows nasality for the final vowel only. (cp. the virtual absence of nasality on the initial vowel of kgm 19 for [ànũ̀nũ̀].).

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2. Most of these have been discussed in detail above, hence only summary statements are given here.

(e) All the above examples have syllables beginning with simple onsets. Here now is a pair of examples illustrating complex onset syllables. A comparison of kgm 63 for [ɲrǎ] with kgm 57 for [dʷá] shows that wave forms persist on the N tracing of the former for the duration of the word whereas none appear on the latter word. This indicates that [r] has a nasal resonance when it forms a cluster with a nasal consonant (cp. kgm. 84 for [nra] where it is similarly nasal). [l] exhibits comparable features when it forms clusters with nasal consonants.

6.2.2. Phonological Elements of Structure.

From the above, it would seem desirable to abstract phonological units of some kind to account for nasalization in Adangme syllables. It is possible to consider these phonetic features in isolation and to formulate a statement that takes direct account of the kymographic evidence — of the parallelism in syllables with nasal onsets followed by nasalized vowels on the one hand and, on the other hand, of the parallelism between syllables with non-nasal onsets followed by non-nasalized vowels, and so on. Such a treatment would, for instance, establish the following groupings on the sole basis of the total amount of nasality the words exhibit on the kymograms:

(i) nǎ , ɲrǎ :

(ii) ta , dʷá : and

(iii) nà , tǎ , gbǐ . kpǐ .

The justification for such a formulation would be, for instance, that group (i) items are wholly nasalized; that group (ii) items are wholly non-nasalized, and that of the group (iii) items, the beginning of [nà] on kgm 10 shows as much nasality as the ends of the others do.

However, it is felt that such a degree of fidelity to the physical data adds little to the phonetic statements already made while it at the same time obscures important features of the grammatical structure. It is preferred to take into account the way in which these words participate in larger grammatical structures and to formulate phonological statements accordingly. The following examples, drawn from the two types of grammatical structure to be dealt with in 6.3. below, illustrate the deep structural parallelism to be found in C elements of structure irrespective of whether they are phonetically nasal or not. Items listed on each line pattern alike.

(i) Nominal plus definite article:

nǎ ǎ	tǎ ǎ
nà a	ta a

(ii) Synchronically-derived adjectives:

Verb	Adjective	Verb	Adjective
nà	nànɛ̀ɛ́	sà	sàsɛ̀ɛ́
nǎ	nǎnɛ̌ɛ́	sǎ	sǎsɛ̌ɛ́

It is proposed to make the phonological formulation reflect these structural features by the expansion of the C elements of

structure not by an appeal to nasality in consonant sounds but by the use of criteria that bear directly on the grammatical structure of the examples (see 6.3.3. below).

As regards V elements of structure, the three phonematic units I E and A were abstracted in 5.2. by taking nasality (and other factors) into account; no further expansion of this system can be made on the basis of nasality. There exists a basis, founded on grammatical structure, for expanding the V system; this is discussed in 6.3. below.

And finally as regards prosodies, the following were abstracted in 5.4.1. above:

$1/\overline{1}$

$y/w/\circ$

To these must now be added a prosody of nasalization, $n/\overline{n}$, to be written immediately before the syllables concerned, so that Adangme syllable types would include

$1n(CA)^{\circ}$, $\overline{1n}(CI)^{y}$, $1\overline{n}(CA)^{y}$, etc.

It is to be noted that all (E) and $1/\overline{1}(CE)$ syllables are always "$\overline{n}$", hence that symbol is redundant for the description of such syllables and will be omitted in all cases. The same convention applies to V-initial syllables of polysyllabic words; see 6.3.2. below.

Among the phonetic exponents of "n" is the lowering of the velum during the articulation of the whole or the end of a syllable.

6.3.1. Dependent Commutational Systems

The V and C commutational systems described in Chapter 5 above were all independent, hence no systematic relations could be established between contiguous syllables and none were shown. Some grammatical structures, however, involve an automatic choice of V and C elements of structure which can be usefully portrayed by the establishment of appropriate phonological units. Syllabics are used below for this purpose, in the phonological description of the structures of

(i) NPs comprising Nominals and definite articles;

(ii) Adjectives synchronically derived from verbs. These are discussed respectively in 6.3.2. and 6.3.3. below.

Since the commutational systems under observation here are not altogether independent brackets will be used definitively (5.4.1.) in conjunction with syllabics to bring together dependent commutational systems and to keep apart, as before, independent ones.

6.3.2. NPs comprising Nominals and Definite Articles

The singular definite article has been shown in 2.11. above to be a V element which is phonetically realized as [a] where the nominal preceding it ends in [-a] and as [ɔ] in all other cases, nasality in the definite article being a function of nasality in the "conditioning" vowel. Compare the differences between the N tracings of kgm 77 for [bɔ̃ ɔ] and kgm 78 for [bɔ̃́ ɔ̃]; see also the similarity between the amplitude of the wave forms on the N

tracing on the segments marked T-P on kgm 78 (above) and on kgm 83 for [nɜ̃ ɜ̃].

The following are therefore realizations of the singular definite article: [a], [ã], [ɔ] and [ɜ̃], as in

[ta a] the battle, but [ta agbo ɔ] the big battle;

[nã̀ ã] the cow, but [nã̀ ãgbò ɔ] the big cow;

[gbé ɔ] the dog, but [gbé jája a] the bad dog;

[bɜ̃́ ɜ̃] the facial mark, but [bɜ̃́ àgbò ɔ] the big facial mark;

[ŋmɜ̃ ɜ̃] the farm, but [ŋmɜ̃ kpákpá a] the good farm;

[bɔ́ ɔ] the dew, but [bɔ́ ŋ̃ãfí ɜ̃] the tiny dew.

The V element that corresponds to the (grammatical) singular definite article is therefore in a commutational system that is bound up with that of the last (or only, in the case of monosyllabic nominals) syllable of the nominal immediately preceding it. It is proposed to base the phonological formulation on this structural fact and to denote this V element by a syllabic symbol "ə" to be placed in the same bracket as the final (or only) syllable of the nominal concerned. This "ə" is not a superscript symbol. As may be surmised from examples such as

tɛ́ ɔ	the stone,
gbé ɔ	the dog, and
gbɪ̀ ɜ̃	the language

it will be necessary in some cases to specify different prosodies for the syllabic and for the final syllable of the nominal. The phonematic units and prosodies established so far will be used in

the formulae below. But first a comment must be made on V-initial words occurring immediately after nasalized syllables.

Kgms 79 and 80 both with simultaneous N and M tracings, may be compared in this connection. The respective utterances are [wà nã? àgbó] meaning we saw a gate and [wà nã:gbó] which is an ambiguous utterance having the following two possible orthographic forms and meanings (cp. 4.2.1. above):

Orthography	Meaning
wà nã àgbó	We saw a gate
(we - saw - gate)	
wà nã ã gbó	Our cow is dead
(our - cow - the - is dead)	

The two kymograms represent emphatic and unemphatic articulations respectively.

There is a distinct difference on the N tracings of the two, the first having prominent wave forms for the short segment S-T (duration 25 cs) only, T marking the onset of the glottal closure, and the second having prominent wave forms for the longer segment S-R (duration 51 cs). These features show that where there is a junctural glottal stop (see 4.2.29. and 5.4.23.) V-initial syllables of polysyllabic words occurring immediately after a nasalized syllable remain non-nasalized but in other cases they are nasalized. Such nasalization always eliminates the word boundary anyway. The system proposed here, as indeed was the one proposed in 5.4. above,

is applicable to emphasis - contrastive utterances but it is not intended to pursue that distinction further at this stage.

It will have become clear that this sub-section 6.3.2. is concerned specifically with the final (or only, in the case of monosyllabic nominals) syllable of nominals and with the singular definite article when these two colligate. This fact will be reflected in the treatment of polysyllabic nominals in the examples cited below; since our main interest is in their final syllables, these will be underlined in the transcription along with the definite article concerned, and phonological formulae will be proposed for these alone. A modification of the conventions used so far is introduced at this stage: syllable prosodies have hitherto been specified for each syllable whether or not contiguous syllables have the same prosody; to underline the unity of the particular grammatical structures under review in 6.3.2., prosodies having their foci in two contiguous syllables will be specified once only, after the second syllable of any such pair. Below now are a variety of NPs comprising nominals and definite articles:

Transcription	Meaning	Phonological Formula
ta a	the battle	$\overline{\text{ln}}(\text{CA}\ \bullet)^{\bullet}$
nǎ ǎ	the cow	$\overline{\text{ln}}(\text{CA}\ \bullet)^{\bullet}$
gbī ɔ	the language	$\overline{\text{ln}}[(\text{CI})^{y}\ (\bullet)^{w}]$
ŋmlɛ̀ ɔ	the bell	$\overline{\text{ln}}[(\text{CA})^{y}\ (\bullet)^{w}]$

Transcription	Meaning	Phonological Formula
tú ɔ	the gun	$\overline{\text{In}}(\text{CI } \text{ə})^{w}$
nã̀ àgbò ɔ	the big cow	$\overline{\text{I}}(\text{CE } \text{ə})^{w}$
gbé jája a	the bad dog	$\overline{\text{In}}(\text{CA } \text{ə})^{\text{ə}}$
bɔ́ ɔ	the dew	$\overline{\text{In}}(\text{CA } \text{ə})^{w}$
bɔ́ nãrĩ̀ ɔ̃	the tiny dew	$\overline{\text{In}}[(\text{CI})^{y}\ (\text{ə})^{w}]$
bɔ́ ɔ́	the facial mark	$\overline{\text{In}}(\text{CA } \text{ə})^{w}$
àkɔ̀dɔ́ ɔ	the banana	$\overline{\text{In}}(\text{CI } \text{ə})^{w}$

Corresponding to the [a], [ã], [ɔ] and [ɔ] sounds of the singular definite article are their plural forms [amɛ̃], [ãmɛ̃], [ɔmɛ̃] and [ɔmɛ̃]. Their syntax has been discussed in Chapter 3 above. Their phonological structure is construed as being parallel to that of their singular congeners, hence NPs consisting of nominals and plural definite articles have their relevant parts' phonological structures generalized in the formula

$$1/\overline{\text{I}}\ \ n/\overline{n}\ \ [(\text{CV})^{\text{ə/w/y}}\qquad(\text{ə})^{\text{ə/w}}\ ]$$

"CV" being a generalization of the final syllable of the nominal and "ə" a generalization of the first syllable of the plural definite article. It is to be noted that the second syllable of the latter is invariable and introduces no new commutational systems for which a fresh system need be established.

6.3.31. Adjectives Synchronically derived from Verbs

As shown in 2.7.33. above, Adangme verbs undergo various nominalizing processes: one involves the suffixation of [-mĭ] to a variety of verb stems to form gerunds (see 2.7.33.) as in:

dʒu	to steal	dʒumĭ	theft
jà dè	to go hunting	dejamĭ	hunting;

another involves the suffixation of singular [-lɔ] and of plural [-li] to a variety of verb stems to form agentive nouns (see 2.7.32.) as in

dʒu	to steal	dʒulɔ	thief	dʒuli	thieves
jà dè	to go hunting	dejalɔ	hunter	dejali	hunters

and a third, the subject of this sub-section, involves the synchronic derivation of adjectives (see 2.9.2.) from verb stems, as in:

Verb		Derived Adjective	Example
dɔ̀	to dance	dɔ̀dɔ̀é	hlɛ̀mí dɔ̀dɔ̀é star (literally dancing moon)
blí	to open	bíblí	sí̀nɛ̀ bíblí open door
gblí	to get dry	gbígblí	bà gbígblí dry leaf
gbla	to pull	gblagblé	klɛ́mɛ́ gblagblé pull-able machine /
sá	to snatch	sásé	nɔ̃ sásé a snatched object
sa	to get rotten	sasé	bo sasé rotten cloth
sà	to sieve	sàsɛ̀é	mɛ̀mɛ̃ sàsɛ̀é sieved grain powder
tà	to chew	tàtɛ̀é	kùtʃá tàtɛ̀é chewing sponge

Verb		Derived Adjective	EXAMPLE	
sǎ	to toast	sǎsɛ̀ɛ́	àmǎdàǎ sǎsɛ̀ɛ́	toasted plantain
ye	to eat	yeyé	lo yeyé	edible fish

As these examples show, a certain form of Vowel Harmony may be said to operate in the structure of these adjectives. The term vowel harmony is employed here in a sense quite different from the one in which it is usually employed in relation to other West African languages (see e.g. Carnochan, op.cit.). This structural feature is best discussed with reference to the affirmative-negative transformation of the Aorist tense of the Indicative Mood of Adangme verbs. Further clarification of the structure of such derived adjectives is obtained by grouping the verbs concerned into tonal classes. For, when separate statements are made for adjectives derived from monosyllabic low tone verbs, from monosyllabic mid tone verbs, and from monosyllabic high tone verbs (these will be called respectively Class I, Class II and Class III verbs), further structural parallelisms become apparent.

This structural feature is not restricted to monosyllabic verbs, but, for the sake of simplicity and because monosyllabic verbs outnumber other verbs by a very wide margin, the detailed discussion will be related to monosyllabic verbs only, or, more specifically, to monosyllabic verbs with simple onsets. A phonological system will be abstracted for adjectives derived from such verbs and will be found, as was the case with the 1(CV) and $\bar{1}$(CV) syllable types of

Chapter 5, to be applicable to a description of the structure of adjectives synchronically derived from monosyllabic verbs with complex onsets, when due account is taken of the 1/$\bar{1}$prosody. Illustrations of this are provided in 6.3.34. below.

The verbs will be grouped into the three tonal classes suggested above and citations will be provided for the third person singular pronoun subject followed respectively by the affirmative form of each verb in Column One and by its negative form in Column Two. For each of Verb Classes I and III, twelve citations are given, one for each of the vowel sounds found in monosyllabic verbs with simple onsets. For Class II verbs, only eleven citations are given because no simple-onset monosyllabic verb ends in [-ɛ̃] on a mid tone. This is the only systemic gap in $\bar{1}$(CV) verbs.

In the lay-out of the citations, the verbs are grouped according to the tongue height of their vocalic elements; first come close vowels, then come half-close ones and finally come the rest together. This is done partly so that the discussion may be more easily linked to the phonological statements already made in terms of the I, E and A phonematic units, and partly because this approach best reflects the structure of the adjectives.

The tonal classes ascribed to the verbs in the citations given below hold good for each verb when its <u>affirmative</u> form occurs

(a) in isolation, or

(b) utterance-finally

in this particular tense. The substitution of other subject NPs for the third person singular pronoun subject does not, in case (b), alter the verb form tonally or in any other way that would invalidate the conclusions arrived at from the citations to be employed, cf.

è sù — he has arrived

kòfí sù — Kofi has arrived

à sù — they have arrived

nĭmli àgbò ɔ mǎ sù — the big people have arrived.

The classification remains unaltered even though, as shown below, there are pitch differences that characterize the affirmative - negative forms of each verb and even though tonal and other changes may be observed in these verbs when they occur in environments other than those specified above. Such factors bear no direct relevance to the subject under review here.

The intonational features of the pronoun-plus-verb sentences cited here will likewise attract no comment here. The tonal structure of the derived adjectives will be dealt with in Chapter 7. If the accompanying glosses make some of the derived adjective forms look more like nouns than adjectives (for differences between these word classes, see 2.4.3. above), it is largely because many of them have homophonous forms that function as synonyms of the gerunds mentioned above, viz. these derivatives of [d3u] to steal:

d3umĭ, d3ud3úí } theft — d3ud3úí stolen

6.3.32. Adjectives derived from Simple Onset Monosyllabic Verbs

The three verb classes are illustrated below.

Glosses are given for the first and third columns only. In the description of the structure of each derived form, the first syllable will be called the stem and the rest of the word will be called the reduplicative.

Class I (Low tone in isolation....)

	Column 1: Affirmative		Column 2: Negative	Column 3: Derived Adjective	
a	è sɪ̀	he fried	è sɪ́?	sɪ̀sɪ̀ɪ́	fried
	è pì	he is hefty	è pí?	pìpìí	hefty
	è gʉ̀	he pierced	è gʉ́ʉ́?	gʉ̀gʉ̀ɪ́	leaking
	è sù	he has arrived	è súí?	sùsùí	arrival
b	è ʤè	it is cheap	è ʤí?	ʤèʤèé	cheap
	è dɔ̀	he danced	è dúí?	dɔ̀dɔ̀é	dancing
c	è ŋmɛ̀	he weighed (transitive)	è ŋmɛ́?	ŋmɛ̀ŋmɛ̀ɛ́	weighed
	è jɛ̀	he fetched (liquid)	è jé?	jɛ̀jɛ̀ɛ́	fetched
	è sɐ̀	he toasted (on fire)	è sɐ́?	sɐ̀sɐ̀ɐ́	toasted
	è pà	he borrowed	è pé?	pàpɛ̀é	borrowed
	è sɜ̀	he forged (metal)	è sʉ́ɛ́?	sɜ̀sʉ̀ɛ́	forged
	è pɔ̀	he soaked	è púé?	pɔ̀pʉ̀é	soaked

Observations

1. All the adjectives have the phonetic structure CVCVV, the reduplicatives being directly relatable to the ngative forms of the verbs concerned or, failing that (as is the case with verbs ending in half-close vowels) to the affirmative form.

2. Adjectives derived from the first four verbs (group a) end in close front vowels; those derived from the next two (group b) end in half-close front vowels, and the rest end in half-open front vowels. It will be observed that this patterning parallels that of the three phonematic units I E and A , and that a front vowel with a high pitch in final pos tion is a basic feature of all the above derived adjectives. Pitch features are discussed in Chapter 7.

3. Nasality in the derived adjective is a function of nasality in the verb stem.

.....

Class II (Mid-tone in Isolation.....)

	Column 1: Affirmative		Column 2: Negative	Column 3: Derived Adjective	
a	e tʃɪ	he blocked	è tʃɪ́?	tʃɪtʃɪ́	blocked
	e hi	it's fully grown (crops)	è hí?	hihí	fully grown
	e dũ	he is trapped	è dṹɪ́?	dũdṹɪ́	trapped
	e du	he bathed	è dúí?	dudúí	bathing
b	e je	he ate	è jí?	jejé	edible
	e to	he arranged	è túí?	totóé	arranged
c	e kpɛ	he sewed	è kpɛ́?	kpɛkpɛ́	sewn
	e mã	he built	è mɛ̃́?	mãmɛ̃́	built
	e sa	it is rotten	è sé?	sasé	rotten
	e fɔ̃	he threw	è fṹɛ̃́?	fɔ̃fṹɛ̃́	thrown
	e tʃɔ	he sent	è tʃúé?	tʃɔtʃúé	sent

Observations

1. There are only 11 citations in this class, there being no $\bar{1}$(CV) verb ending in [-ɛ̄] on a mid-tone.

2. The six adjectives derived from verb stems that end in front vowels are of phonetic CVCV structure, whilst the rest are of phonetic CVCVV structure. Measurements from kymograms will be adduced below to show that this difference in phonetic structure is not fundamental enough to prevent the assignment of one phonological structure to these two types of adjective.

3. The relation of the reduplicatives to their verb stems is similar to that described in observation 1. under Class I verbs.

4. The vowels that end the three groupings of derived adjectives again parallel the I/E/A phonematic units.

5. Nasality in the derived adjective is a function of nasality in the verb stem.

.....

Class III (high tone in Isolation.....)

Column 1: Affirmative		Column 2: Negative	Column 3: Derived Adjective	
è sí	he left (transitive)	è sí we?	sísí	abandoned
è sí	he pounded	è sí we?	sísí	pounded
è dū	he planted	è dū we?	dūdūí	planted
è bú	he put on (a hat,etc.)	è bú we?	búbúí	capable of being put on
è dé	he said	è dé we?	dédé	spoken
è gbó	he died	è gbó we?	gbógbóé	dead
è tʃɛ́	he spun(a top etc.)	è tʃɛ́ we?	tʃɛ́tʃɛ́	spun

Column 1: Affirmative		Column 2: Negative	Column 3: Derived Adjective	
è tʃɛ́	he called	è tʃɛ́ we?	tʃɛ́tʃɛ́	summoned
è dɜ̌	he wasted	è dɜ̌ we?	dɜ̌dɜ̌	wasted
è tʃá	he healed	è tʃá we?	tʃátʃɛ́	cured
è kpɔ̄	he saved	è kpɔ̄ we?	kpɔ́kpʊ̄	saved
è tʃɔ́	he plucked	è tʃɔ́ we?	tʃɔ́tʃʊ́	plucked

Observations

1. The phonetic structure of adjectives derived from verbs that end in front vowels differs from that of other adjectives in the way described in Observation 2 under Class II verbs.

2. The reduplicatives follow the pattern described for Class I- and Class II-derived adjectives above.

3. The vowels that end the three groupings of adjectives again parallel the phonematic units I E and A.

4. Nasality in the derived adjectives is a function of nasality in the verb stem.

6.3.33. The Phonological Structure of Derived Adjectives

It will have been observed that the prosodic phonological system abstracted in Chapter 5 was not arrived at by exclusively considering the syllable types found in nominals. The verb structures and the observations made on the adjectives synchronically derived from them in 6.3.32. above give ample proof of the applicability, for present purposes at least, of the phonological system hitherto established to a description of the verb stems and, after the

abstraction of further categories peculiar to the structures under review here, of the derived adjectives cited above. This is done without prejudice to the fact that a full-scale prosodic study of the verbal piece in Adangme may well require the abstraction of additional — or even entirely different — phonological categories. The greatest merit of the system adopted below is, perhaps, that it seems to reflect the phonological structure of these derived adjectives quite adequately.

An observation was made above with regard to the differences in phonetic structure between certain sub-groupings of Class II- and Class III-derived adjectives. The measurements of the durations of a selection of derivative adjectives presented below show that such ostensible phonetic differences are by no means reflected durationally in the instrumental data. The segments, marked P-R in each case, denote the maximum duration of each utterance as far as this could be determined. Measurements were made on the M tracing for the first three and on the N tracing for the last two, as these showed the longest stretches of wave lines and/or displacements. They are tabulated below:

kgm 75a	sǎsɛ̀ɛ́	90.5 cs.
kgm 76	sàsɛ̀ɛ́	81 cs.
kgm 85	sasɛ́	82 cs.
kgm 81	nànɛ̀ɛ́	76 cs.
kgm 82	nǎnɛ̀ɛ́	83.5 cs.

Kgm 85 which might have been expected to be the shortest turns out in fact to be longer than two others, and the main determinant of duration seems to be nasality (cp. kgm 75a with 76, and 82 with 81).

One may conclude from the above that all derived adjectives may be construed to be of the phonological structure C V C V without obscuring any significant structural features. C V is the stem and C V is the reduplicative. The stem is in an independent commutational system and its structure will be described in terms of the phonological system abstracted earlier. The reduplicative is in a dependent commutational system (cf. the regular identity of C_1 and C_2, and the predictable vocalic endings) and will be symbolized "qə" in each case, with prosodies duly indicated for both stem and reduplicative.

One additional convention is called for: when a stem is assigned the prosodies "y" or "w", such prosodies have a focus in the beginning of the reduplicative as well but when a stem is assigned the prosody "ə" this is applicable to the stem alone. This convention is adopted to obviate the necessity of introducing a fresh set of syllable-initial prosodies which are otherwise not required in the phonological description and which would unnecessarily complicate the notation. The adjectives cited in 6.3.32. may now be assigned the following phonological structures; note that the n/n̄ prosody is again inapplicable to syllables having an E element:

Class Ia

sǐsǐ́ — $\bar{I}n[(CI)^{y}(qe)^{y}]$

pìpí — $\overline{In}[(CI)^{y}(qe)^{y}]$

gùgǔ́ — $\bar{I}n[(CI)^{w}(qe)^{y}]$

sùsǔ́ — $\overline{In}[(CI)^{w}(qe)^{y}]$

Class Ib

d3ɛ̀d3ɛ̀é — $\bar{I}[(CE)^{y}(qe)^{y}]$

dɔ̀dɔ̀é — $\bar{I}[(CE)^{w}(qe)^{y}]$

Class Ic

ŋmɛ̌ŋmɛ̌ɛ̃́ — $\bar{I}n[(CA)^{y}(qe)^{y}]$

jɛ̀jɛ̀é — $\overline{In}[(CA)^{y}(qe)^{y}]$

sɐ̌sɛ̌ɛ̃́ — $\bar{I}n[(CA)^{e}(qe)^{y}]$

pàpɛ̀é — $\overline{In}[(CA)^{e}(qe)^{y}]$

sɔ̀sʊ̃́ — $\bar{I}n[(CA)^{w}(qe)^{y}]$

pɔ̀pʊ̀é — $\overline{In}[(CA)^{w}(qe)^{y}]$

Class IIa

tʃɪ̄tʃɪ́ — $\bar{I}n[(CI)^{y}(qe)^{y}]$

hihí — $\overline{In}[(CI)^{y}(qe)^{y}]$

dʊ̄dʊ́ — $\bar{I}n[(CI)^{w}(qe)^{y}]$

dudúí — $\overline{In}[(CI)^{w}(qe)^{y}]$

Class IIB

jejé — $\bar{I}[(CE)^{y}(qe)^{y}]$

totóé — $\bar{I}[(CE)^{w}(qe)^{y}]$

Class IIc

kpɛkpɛ́ $\overline{\text{In}}[(\text{CA})^{y}(\text{qɒ})^{y}]$

mɛ̃mɛ̃́ $\overline{\text{In}}[(\text{CA})^{ɒ}(\text{qɒ})^{y}]$

saaá $\overline{\text{In}}[(\text{CA})^{ɒ}(\text{qɒ})^{y}]$

fɜfʊ̃́ʊ̃́ $\overline{\text{In}}[(\text{CA})^{w}(\text{qɒ})^{y}]$

tʃɔtʃúá $\overline{\text{In}}[(\text{CA})^{w}(\text{qɒ})^{y}]$

Class IIIa

sísí $\overline{\text{In}}[(\text{CI})^{y}(\text{qɒ})^{y}]$

sísi $\overline{\text{In}}[(\text{CI})^{y}(\text{qɒ})^{y}]$

dṹdṹ $\overline{\text{In}}[(\text{CI})^{w}(\text{qɒ})^{y}]$

bú́bú́ $\overline{\text{In}}[(\text{CI})^{w}(\text{qɒ})^{y}]$

Class IIIb

dédé $\overline{\text{I}}[(\text{CE})^{y}(\text{qɒ})^{y}]$

gbógbóé $\overline{\text{I}}[(\text{CE})^{w}(\text{qɒ})^{y}]$

Class IIIc

tʃɛ́tʃɛ́ $\overline{\text{In}}[(\text{CA})^{y}(\text{qɒ})^{y}]$

tʃétʃé $\overline{\text{In}}[(\text{CA})^{y}(\text{qɒ})^{y}]$

dɛ̃dɛ́ $\overline{\text{In}}[(\text{CA})^{ɒ}(\text{qɒ})^{y}]$

tʃátʃé $\overline{\text{In}}[(\text{CA})^{ɒ}(\text{qɒ})^{y}]$

kpɜ́pkʊ̃́ɛ́ $\overline{\text{In}}[(\text{CA})^{w}(\text{qɒ})^{y}]$

tʃɔ́tʃúé $\overline{\text{In}}[(\text{CA})^{w}(\text{qɒ})^{y}]$

6.3.34. **Adjectives Derived from Complex Onset Monosyllabic Verbs**

As Table D and general feature 6 of Chapter 5.1. might have led us to expect, the complex onset monosyllabic verbs of the classes proposed above show more systemic gaps than do simple onset ones. Thus while the latter showed only one gap (in Class IIc), the former show as many as 17.

In this sub-section, the phonological system established above will be used to describe the structure of adjectives derived from complex onset monosyllabic verbs. / Examples of those complex onset monosyllabic verb classes encountered in the Adangme material will be grouped as in 6.3.32. and listed with glosses in column 1; the adjectives derived from them appear in column 2 with their glosses and the phonological formulae proposed for the adjectives appear in column 3.

The generalized structure of complex onset monosyllabic verbs is

$$\text{ln}/\overline{\text{n}}(\text{CV})^{\text{y/w/e}}$$

There are two types of phonological structure for adjectives derived from these:

(a) $\text{ln}/\overline{\text{n}}[(\text{CV})^{\text{y/w/e}}(\text{qe})^{\text{y}}]$

for those adjectives in which both the stem and the reduplicative have complex onsets, as in

gbla gblagblé , and

tʃrɔ tʃrɔtʃrúé of Class IIc; and

(b) $\text{n}/\overline{\text{n}}[(\text{qe})^{\text{y}}\text{l}(\text{CV})^{\text{y}}]$

for the two adjectives of Class IIIa in which alone the stem and the reduplicative are transposed, the latter having a simple onset.

Below are the citations:

Column 1		Column 2		Column 3
Class Ib				
klɛ̀	to be big	klɛ̀klɛ̀é	sizable	$l[(CE)^{y}(qe)^{y}]$
slɔ̀	to be different	slɔ̀slɔ̀é	difference	$l[(CE)^{w}(qe)^{y}]$
Class Ic				
dʊ̀ɛ̃	to become limpid	dʊ̀ɛ̃dʊ̀ɛ̃́	limpid	$ln[(CA)^{y}(qe)^{y}]$
tʊ̀à	to get lost	tʊ̀àtʊ̀àé	lost	$ln[(CA)^{e}(qe)^{y}]$
klɔ̀	to care for	klɔ̀klɔ̀é	solicitude	$ln[(CA)^{w}(qe)^{y}]$
Class IIc				
klɛ̃	to move house	klɛ̃klɛ̃́	moving	$ln[(CA)^{y}(qe)^{y}]$
gblɛ	to grind	gblɛgblɛ́	ground	$ln[(CA)^{y}(qe)^{y}]$
ɲrã	to scrape	ɲrãɲrã́	scraped	$ln[(CA)^{e}(qe)^{y}]$
gbla	to pull	gblagblá	pull-able	$ln[(CA)^{e}(qe)^{y}]$
tʃrɔ	to lay one's head on	tʃrɔtʃrúé	capable of supporting the head	$ln[(CA)^{w}(qe)^{y}]$
Class IIIa				
gblí	to get dry	gbígblí	dry	$n[(qe)^{y}l(CI)^{y}]$
blí	to open	biblí	open, ajar	$n[(qe)^{y}l(CI)^{y}]$
Class IIIb				
hlé	to save	hléhlé	saved	$l[(CE)^{y}(qe)^{y}]$
dʒró	to beg for	dʒródʒróé	begged for	$l[(CE)^{w}(qe)^{y}]$

Class IIIc

plɛ́	to turn	plɛ́plɛ́	turned	$\ln[(CA)^{y}(qo)^{y}]$
blé	to rub	bléblé	rubbed	$\ln[(CA)^{y}(qo)^{y}]$
ŋmlɑ́	to scrape	ŋmlɑ́ŋmlɛ́	scraped	$\ln[(CA)^{o}(qo)^{y}]$
wlá	to solidify	wláwlé	solid	$\ln[(CA)^{o}(qo)^{y}]$
gblɔ́	to snatch	gblɔ́gblúé	snatched	$\ln[(CA)^{w}(qo)^{y}]$

The observations accompanying the various monosyllabic simple onset verb classes and their derived adjectives of 6.3.32. apply mutatis mutandis to the corresponding complex onset verb forms.

7. PITCH, TONE AND INTONATION IN ADANGME NPS

7.1. This chapter presents a brief and exploratory study of pitch, tone and intonation in Adangme NPs when the latter occur in various grammatical contexts, for instance as one-word sentences, as two-word sentences or as subjects in sentences comprising an NP and a VP. A major limiting factor in this study was the fact that the pitch meter was only very recently available and while use has been made of this additional apparatus and a number of tonograms included, it was not possible to undertake a full scale tonal investigation, with the result that such matters as the relation of pitch to particular consonantal articulations has had to be left out.

For a description of the basic mechanism of a pitch meter, see Carnochan 1964, p. 399. Each tonogram shows ~~three~~ two tracings: the top one displays the pitch features of an utterance, with short vertical lines corresponding to high pitch and long ones corresponding to low pitch; the ~~centre~~ second tracing is an oscillogram of the utterance and ~~the third~~ at the bottom of the page is a 50 Hz time marker on which the gap between successive peaks is 2 centiseconds. Most of the subsequent discussion will be concerned with the top picture.

Following Carnochan (op.cit., p. 398), a distinction is maintained here between pitch, tone and intonation. These will be discussed in turn below.

7.2. **PITCH** is a musical sensation that depends on the rate of vibration of the vocal cords, and the pitch of an utterance can be measured instrumentally in terms of frequency values of the voice fundamental, high pitch being characterized by a high frequency of the fundamental and low pitch by a low frequency of the fundamental. As is well known (e.g. Pike, 1948, p.vi), it is not so much the absolute pitch of a syllable that counts as its relation to those of neighbouring syllables. And Adangme, being a tone language, utilizes pitch to make lexical contrasts, as in the following:

mȁ	town (cf. Tgm 1)	mā	herring (Tgm 4)	má	corn dough (Tgm 7)
sȁ	to sieve	sa	to rot	sá	to snatch
sù	to arrive	su	to kindle	sú	to spout

The pitch features of selected utterances, stated in Hz (or cycles per second) on the accompanying tonograms, are here treated as the phonetic exponents of the phonological tone classes set up below. The statements made below will be concerned exclusively with ordinary, unemotional colloquial speech and will therefore take no account of pitch features that characterize people's speech when they are influenced by such emotions as anger, surprise, disgust, elation, etc. There is nothing "irregular" or "abnormal" about these; they are excluded merely because their description would call for a slightly different frame of reference than is used in the present study.

7.3. **TONE** is a phonological abstraction made from pitch phenomena, and is treated here as a prosody of the syllable. In any word, therefore, there would be as many tones as there are syllables. The tones of Adangme syllables are in a three-term commutational system of H, M and L: these represent the maximum number of contrasts as well in initial place as in any one place in structure. The phonetic exponents of each of the three tones varies in different examples and may be related to the phonological structure of the word. The tonal classes of words are indicated by the tone marks used heretofore, supplemented where necessary by the letters L, M and H written in brackets after the words.

7.3.1. Different exponents of L. Tgm 1 for [mɛ̀](L) town shows a rise from 110 Hz to 130 Hz followed by a steady fall to 85 Hz. The exponent of L in this monosyllabic CV noun differs from its exponents in words of other phonological structures: on Tgm 2 for [ɔ̀kpɔ̀](LL) dove, a dissyllabic noun of VCV structure, the first syllable has a fall from 160 Hz to 110 Hz and the second from 160 Hz to 90 hz. The range of the fall is very much narrower on Tgm 3 for [tàbá](LH) tobacco for pipe smokers, a dissyllabic word of structure CVCV, when there is only a slight fall in the first syllable from 130 Hz to 120 Hz.

Different exponents of M: Similarly, the exponent of M on Tgm 4 for [mă] herring is a rise in pitch from 130 Hz to 140 Hz and steady pitch thereafter, whilst on Tgm 5 for [pɛli] (M M) wing, the exponent of M is level pitch of about 130 Hz. Again, on Tgm 6 for [sĭnɔ́] (MH) snake, the exponent of M is fairly level pitch of 140 Hz on the first syllable.

Different exponents of H: Tgm 7 for [mắ] (H) corn-dough shows a steady rise in pitch from 90 Hz to 130 Hz; on Tgm 8 for [ánɔ] (HL) cat, however, the exponent of H on the first syllable is fairly level pitch of 140 Hz; and on Tgm 6 for [sĭnɔ́] (MH) snake the exponent of H on the second syllable is level pitch of 160 Hz.

These examples are typical of nominals belonging to the tonal and phonological word classes from which they are drawn and the pitch features they exhibit hold good for them when they occur as one-word sentences as well in answers to questions as in other situations.

. . .

7.3.2. Monosyllabic words have a three-term alternance of H, M and L. Their pitch exponents in one-word sentences have been described with reference to Tgms 1, 4 and 7 above.

. . .

7.3.3. Dissyllabic words have a seven-term alternance of LL, LH, MM, MH, HL, HM and HH. In one-word sentences, the relation of the two tones in each dissyllabic word may be:

(a) level, as in

ɔ̀kpɔ̀ (LL) cf. Tgm 2;

pɛ̀li (MM) cf. Tgm 5, and

kɔ́pé (HH) village; or

(b) rising, as in tàbá (LH), (cf. Tgm 3), or wekú (MH) family; or

(c) falling, as in

ánɔ̀ (HL) cf. Tgm. 8, and

áko (HM) parrot.

As shown above, H, M and L have pitch exponents peculiar to their structural position in these words.

In the subsequent detailed discussion, examples will be drawn from only monosyllabic and dissyllabic words. The tonal patterns of the other syllabic word types of Adangme will now be summarized and illustrated. This systematization helps to determine which tonal patterns are indigenous to the language and which are not; as is shown under each syllabic word type, some tonal patterns are referable only to loanwords. This is not to say, of course, that there are no loanwords that have the tonal patterns of indigenous Adangme words; cf. Tgm 3 [tàbá], borrowed from the French tabac; cp. [gɔ̀gá] bucket, [làfá] hundred, [ɔ̀hé] incense.

. . .

7.3.4. Trisyllabic words have an eleven-term alternance:

LLL as in pɔ̀pɔ̀lì worm

LLH " " àpàá labour

LHL " " àkpásà deck chair

LHM as in nɛ̀kʊ́tʃo knee

LHH " " àtɔ́tɔ́ pineapple

MMM " " nɛ̄bɛ̌nɪ̄ ankle

MMH " " tɛ̄mlɛ̄mɪ́ "a sweet berry"

HLH " " sɪ́klɪ̀tɛ́ sweets

HHM " " ámútʊ̄ twin-plantain

HHL " " ŋʊ́ɛ́gà ring

HHH " " gúgúé chest

Two other tonal patterns found in trisyllabic words seem to characterize only loanwords from English; they illustrate the "special tone patterns" referred to in 5.5.1. above:

HLL as in sákɪsì scissors, dɔ́kɪtà doctor;

HML " " tɛ́ŋasè sanitary worker, mísabà mist. alba

7.3.5. Four-syllable words have an eight-term alternance:

LLLL as in àbɔ̀tʊ̀àmɔ̀ beans

LHLL " " kpàɛ́wɪ̀ɛ penny

LLLH " " àsàfɔ̀tú "an annual festival at Ada"

LHLH " " àtɛ́plɛ̀ɛ́ cockroach

LLHH " " àhʊ̀hʊ́ɛ́ mirror

LHHH " " àkɔ́tɔ́kʊ́ lizard

LHHL " " nɛ̀kʊ́tɛ́mɛ̀ adult

HLLH " " sɛ́ɛ̀fʊ̀é key

Three other tonal patterns encountered in four-syllable words claimed only loanwords from English:

LLHL as in sìglèétì cigarette

HLHL " " tíŋlàáfò telegraph

HHLL " " bísíkètì biscuit

7.3.6. Five-syllable singular words have a four-term alternance:

LLLLH as in àdòdòŋmàtʃí wasp

LLLHL " " àlùgùdɔ́ɔ̀ grey baft

LLHHH " " àbòsíámí Satan

LHLLH " " àkpɔ́ɔ̀nɔ́ɔ́ biscuit

One other tonal pattern found for a five-syllable word was again for a loan from English, namely:

HHLHL élóplèés aeroplane

7.3.7. No six-syllable singular word was encountered. The only other syllabic type of word found was a lone seven-syllable word:

HLLHLLH álùgùútùgùù the sour sop fruit.

7.4. INTONATION denotes the succession of tones of the syllables that constitute an utterance. In this sub-section, intonation is discussed with reference to the following structures:

(i) Combinations of words of various syllabic structures (7.4.1.).

(ii) Certain NP types that are regularly characterized by specific intonational features (7.4.21., 7.4.22 and 7.4.23.).

(iii) Sentences comprising an NP and verbs of varying tonal classes (7.4.3.).

7.4.1. In two-word sentences, the relations of the tones of contiguous words may be level, falling or rising:

(a) Level junction in this context is illustrated by Tgm 9 for [há fā́] knife with a broken blade (lit. half a knife) where there is high pitch on both syllables with fundamentals of 130 Hz and 140 Hz, and by Tgm 10 for [nɜ̃mlɔ nā̃ne] human leg where there is a rise on the initial consonant from 130 Hz and 140 Hz followed by level pitch of 140 Hz until the end of the utterance where there is a slight rise.

(b) Falling junction is illustrated by Tgm 11 for [há sɛ̀] knife's blunt edge where there is level pitch of 140 Hz on the first syllable and falling pitch from 110 Hz to 85 Hz on the second syllable, and by Tgm 12 for [ɔ́ mɜ̃mɔ̀] your flower where there is a rise on the initial vowel followed by a continuous fall the sharpest part of which seems to take place during the first [m] articulation (cf. oscillogram). Falling junction in this context is also illustrated by Tgm 13 for [ɔ́ womí] your book where there is a rise on the first vowel followed by fairly level but lower pitch for the rest of the utterance. Notice that H in final position is not so high as in initial position.

(c) Rising junction in this context is illustrated by Tgm 14 for [ta mɪ́] war drum which has level pitch of 140 Hz on the first syllable (cf. oscillogram) and rising pitch of 140 Hz to 170 Hz on the second syllable, and by Tgm 15 for [mɔ̀tû flákú] morning porridge where there is rising pitch from 110 Hz to 120 Hz on the first syllable of [mɔ̀tû] followed by a level pitch of 120 Hz on the

second syllable, whilst both syllables of [flákú] have level pitches of 160 Hz.

The intonational patterns described here hold good for the particular tonal classes of words when these occur in (independent) two-word sentences. In other grammatical contexts — e.g. when such an NP functions as the subject or object of a VP, see 7.4.3. below — the intonation of the new sentence has to be stated afresh, taking into account such factors as the tonal structure of the VP and, depending on that, the sort of junction it makes with the NP of the particular tonal class concerned.

. . .

7.4.2. The Intonation of Certain Grammatical Pieces.

Adangme sentence types such as questions, statements and exclamations do not seem to be distinguished qua sentence types by any regular intonational features. Indeed, although there are question-particles — these do not by any means exhaust Adangme question-types — such as [dʒée] and [ló] as used in

ɔ̀ jà á — you are going

dʒée ɔ̀ jà á? — Where are you going?

ɔ̀ jà á ló? — Are you going?

they are commonly dispensed with in the second type of question so that in ordinary conversational situations and where there are no emotional or other cues to make the speaker's meaning less ambiguous, one has to rely on the extra-linguistic context to decide whether

an utterance such as

ɔ̀ jà á or

hìɔ̀mɪ̀ ŋɛ nɛ̄ ɛ̄

(rain - is - fall - ing)

is a question or a statement, since no intonational cues regularly characterize the one as opposed to the other.

But certain other grammatical pieces exhibit regular intonational features which are reviewed below.

7.4.21. Sentences comprising a Nominal and an Article.

In sentences comprising a nominal and an article, the junction of the article (whether definite or indefinite, singular or plural) with the nominal is always in the mid range and is either level or falling, depending on the tonal classification of the nominal; singular articles alone will be used in most of the examples:

7.4.211. It is level where the nominal belongs to one of the following tonal classes:

(a) monosyllabic L, as in [mɛ̀ ā] the town [--],cf. Tgm 16 and cp. Tgm 1 for [mɛ̄] where the pitch falls. A comparison of Tgm 16 with Tgm 17 below shows that although each has fairly level pitch, the former has a lower general pitch level than does the latter. Other examples with monosyllabic L are mɛ̀ āmɛ [---] the towns, [mɛ̀ ko] a town [--] and [mɛ̀ komɛ̄] certain towns [---];

(b) monosyllabic M, as in [mā a] the herring [--], cf. Tgm 17,

[mā̀ ko] a herring;

(c) dissyllabic LL, as in [ɔ̀kpɔ̀ ɔ] the dove [---], Tgm. 18,

[ɔ̀kpɔ̀ ko] a dove [---].

(d) dissyllabic HL, as in [áǹɔ̀ ɔ] the cat [¯--];

[áǹɔ̀ ko] a cat.

(e) dissyllabic HM, as in [áko ɔ] the parrot [¯--];

[áko ko] a parrot.

(f) dissyllabic MM, as in [pɛ̄li ɔ] the wing [---];

[pɛ̄li ko] a wing

. . .

7.4.212. When the nominal belongs to one of the following tonal classes, the junction with the article is falling with the pitch levelling out during the articulation of the article:

(a) monosyllabic H, as in [mā́ ā] the corn-dough [¯-] cf. Tgm 19;

[mā́ ko] a certain corn-dough.

(b) dissyllabic LH, as in [ɔ̀sɔ́ ɔ] the horse [-¯-];

[ɔ̀sɔ́ ko] a horse.

(c) dissyllabic MH, as in [sɪ̄nɔ́ ɔ] the snake [-¯-];

[sɪ̄nɔ́ ko] a snake.

(d) dissyllabic HH, as in [tédʒí ɔ] the donkey [¯¯-]

[tédʒí ko] a donkey.

Similar intonational statements can be made for three-word sentences comprising two nominals and an article; for four-word

sentences comprising three nominals and an article, etc.

7.4.22. Sentences comprising Nominals and Demonstratives.

In sentences comprising nominals and demonstratives, the junction of the demonstratives [nɔ] this and [nɔmɛ̌] these with the nominals concerned depends again on the tonal classification of the nominals (the singular demonstrative will be used in most of the examples below).

7.4.221. There is high junction involving rising pitch on the final syllable of the nominal and level pitch on the demonstrative with the latter being lower than the end-point of the rising pitch, if the nominal belongs to one of the following tonal classes:
(a) monosyllabic L, as in [mǎ̀ nɔ] this town [˩˧-] cf. Tgm 20 where there is a rise in initial position from 110 Hz to 160 Hz, followed (after a brief fall on the [n-] (cf. the oscillogram) by level but lower pitch of 120 Hz on the demonstrative. The fall on the [n-] is not surprising since there is voicing throughout the articulation of the whole utterance. Cp. too [mǎ̀ nɔmɛ̌] these towns, [˩˧--].
(b) dissyllabic LL, as in ɔ̀kpɔ̀ nɔ this dove [-˩˧-]

ɔ̀gbɔ̀ nɔ this big one

ɔ̀kpɔ̀ nɔmɛ̌ these doves [-˩˧--]

ɔ̀gbɔ̀ nɔmɛ̌ these big ones

(c) dissyllabic HL, as in áǹɔ̀ nɔ this cat [˧˩˧-]

áǹɔ̀ nɔmɛ̌ these cats [˧˩˧--]

An interesting little detail which applies as well to the examples given above as to those to be given below is the fact that the plural demonstrative has a slightly lower pitch than the singular one.

7.4.222. If the nominal belongs to one of the following tonal classes, its junction with the demonstrative is marked by two level pitches in falling relationship:

(a) monosyllabic M, as in mā no this herring

(b) monosyllabic H, as in má no this corn-dough

The difference in the interval is wider in the latter example than it is in the former, owing to differences in pitch of the respective initial syllables.

(c) dissyllabic HM, as in áko no this parrot

(d) dissyllabic MM, as in pəli no this wing cf. Tgm 21.

Dissyllabic MM nominals are unique in this set in having a step-up of their second syllable in this grammatical context. Other examples, also with [-¯-] pitch pattern are [kpə̄nɪ̄ no] this chin, and [gugɔ̄ no] this nose. Trisyllabic MMM nominals exhibit comparable patterns.

(e) dissyllabic LH, as in ðsɔ́ no this horse

(f) dissyllabic MH, as in sɪ̄nɔ́ no this snake

(g) dissyllabic HH, as in tédʒí no this donkey

Comparable statements can be made along these lines about the intonation of NPs comprising trisyllabic etc. nominals and a demon-

strative, and about trisyllabic etc. nominals and an article. And although these nominals occur as one-word sentences and are therefore unlike those of Chaga, (cf. Sharp, 1954), it seems that it would be feasible to make the above analysis the basis of the establishment of "contonational classes" for each syllabic type of word.

7.4.23. The Intonation of Derived Adjectives.

The intonation of derived adjectives lends itself to analysis through the tonal class of verb from which each is derived. Thus, the following intonational patterns are assigned to those adjectives derived from monosyllabic verbs and listed in 6.3.33. above. Their generalized phonological structure was given and justified in 6.3.33. as CVCV, a systematization that sets them apart phonologically from other Adangme nominals. Using the examples cited in the section referred to above, one can assign to adjectives synchronically derived from Class I verbs the tonal structure LH with the following phonetic exponents: low level pitch on the first syllable and low rising pitch on the second thus, [- ˩˧], as in:

sɪ̀sɪ̀ɪ́	fried	pɪpɪ́ɪ́	hefty
gʊ̀gʊ̀ʊ́	perforated	sʊsʊ̀ʊ́	arrival
dʒɛ̀dʒɛ̀ɛ́	cheap	dɔ̀dɔ̀ɔ́	dancing
ŋmɛ̀ŋmɛ̀ɛ́	weighed	jɛ̀jɛ̀ɛ́	fetched
sɐ̀sɐ̀ɐ́	toasted	pɐ̀pɐ̀ɐ́	borrowed

sɔ̀sɔ̀́	metal-cast	pɔ̀pʊ̀́	wet, cf. Tgm. 22.

The intonation of adjectives derived from Class II verbs is MH, with level pitches [˗˗] on both syllables, as in:

tʃɪtʃɪ́	blocked	hihí	well-grown (crops)
dʊ̀dʊ̀́	trapped	dudúí	for bathing
jejé	edible	totóé	arranged
-		kpɛkpɛ́	sewn
mɛ̀mɛ́	built	sasɛ́	rotten
fɔ̀fʊ̀́	thrown	tʃɔtʃʊ́ɛ́	sent

It will be remembered that there are no (monosyllabic simple-onset) Class II verbs ending in [ɛ], hence the gap in the above list.

And finally the intonation of adjectives derived from Class III verbs is HH, with level pitches [˗˗] on both syllables, as in:

sɪ́sɪ́	abandoned	sɪ́sɪ́	pounded
dʊ́dʊ́	planted (crops)	bʊ́bʊ́	worn on the head
dédé	spoken	gbógbóé	dead
tʃɛ́tʃɛ́	spun	tʃɛ́tʃɛ́	summoned
dɛ̀dɛ́	wasted	tʃɛ́tʃɛ́	cured
kpɔ̀kpʊ́ɛ́	saved	tʃɔ́tʃʊ́ɛ́	plucked (fruits)

Comparable statements can be made with regard to those adjectives that are synchronically derived from monosyllabic complex-onset verbs (6.3.34.); the intonation of their respective classes parallels that of the adjective classes cited above.

Although these adjectives may be uttered in isolation as citation forms, it must be pointed out that they rarely occur in

isolation in Adangme. The intonational analysis presented here might, however, be justified on the grounds that the members of each of these three tonal classes of adjectives pattern alike intonationally in larger Adangme NP structures, so that a common intonational pattern characterizes, for instance, t wo-word NPs made up of a dissyllabic HH noun and a (lexically feasible) adjective drawn from the first group, viz. the common [˙˙ _ ˩] pitch features of the following:

tɛ́dʒí sɔ̀ɔ̀ɔ́	brazen donkey
tɛ́dʒí dʒɛ̀dʒɛ̀ɛ́	cheap donkey(s)
tɛ́dʒí pɪ̀pɪ́	hefty donkey
tɛ́dʒí pɔ̀pʊ̀ɛ́	wet donkey, cf. Tgm 22

where the first two syllables have fairly level high pitch of about 170 Hz, the third syllable has a fall from 120 Hz to 90 Hz and the last a rising pitch from 110 Hz to 160 Hz.

7.4.3. The Intonation of Sentences comprising an NP and verbs of varying tonal classes.

In such sentences, the intonational pattern is best described for each sentence as a unit, though correlations are often possible with, for instance, the tonal classification of the verb appearing in a sentence. The pitch ranges of three selected statement-type sentences featuring the Class III monosyllabic verb [lɛ́] to sing, the Class II monosyllabic verb [ba] to come and the Class I mono-

syllabic verb [dʒɛ̀] to be cheap will illustrate.

A comparison of

Tgm 23 for ðkpɔ̀ ɔ lá̀ the dove cooed

Tgm 24 for ðkpɔ̀ ɔ ba the dove came

Tgm 25 for ðkpɔ̀ ɔ dʒɛ̀ the dove is cheap

shows the following pitch features:

Tgm 23: the first syllable has a rise from 120 Hz to 130 Hz and, after the release of the closure for [-kp-], there is a slight fall from 130 Hz to 120 Hz, followed (since the rest of the sentence is voiced) by a continuous rise in pitch to 160 Hz at the end. The sharpest rise seems to occur on the final syllable.

Tgm 24: the first syllable has low level pitch of 140 Hz and this continues after the release of [-kp-] until there is a fall to 110 Hz during the articulation of [b-] (cf. oscillogram) followed by a slight rise to 140 Hz. It will be noticed that the general pitch level of this sentence is lower than that of Tgm 23, and that the rise at the end is not quite as high as that of Tgm 23.

Tgm 25: there is low level pitch of 130 Hz on the initial vowel and, after the release of [-kp-], there is a gradual fall in pitch from 130 Hz, continuing to 120 Hz during the articulation of [dʒ-] (cf. oscillogram), followed by a fall from 130 Hz to 90 Hz on the final vowel. Notice that the general pitch level of this sentence is lower than those of the first two sentences.

In sets of sentences that differ only in the tonal classification of their respective verbs, therefore, there would appear to be a quasi-regular correlation of the pitch exponents of sentence intonation with tonal class of verbs.

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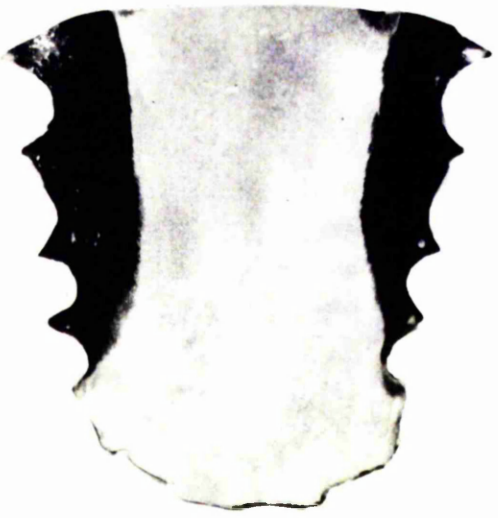

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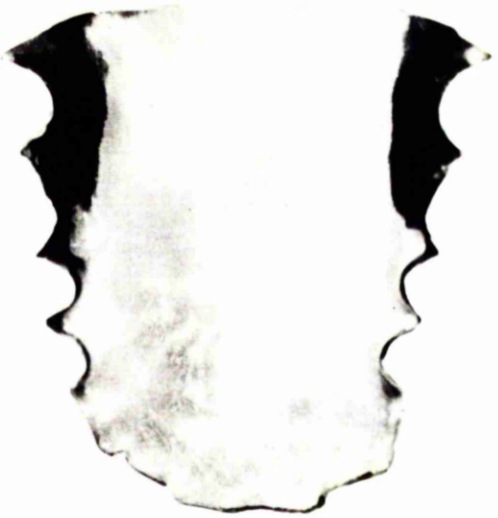

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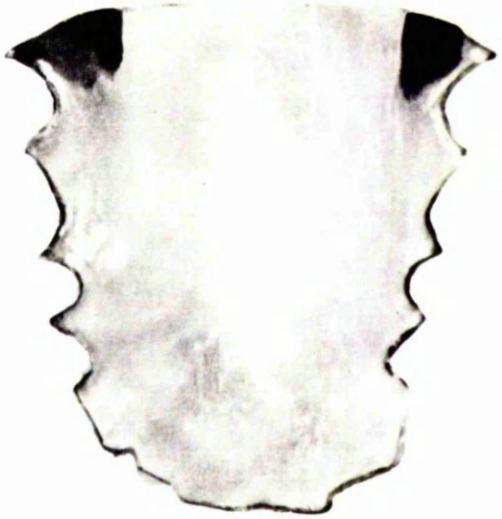

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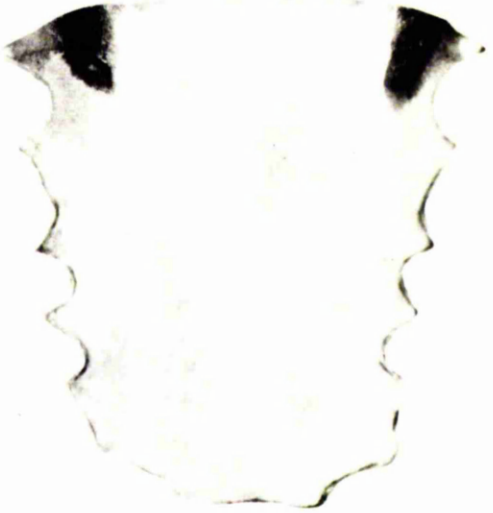

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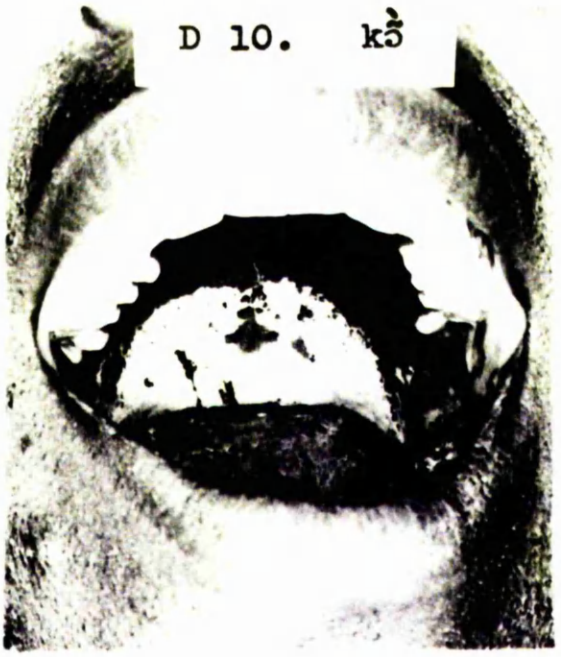

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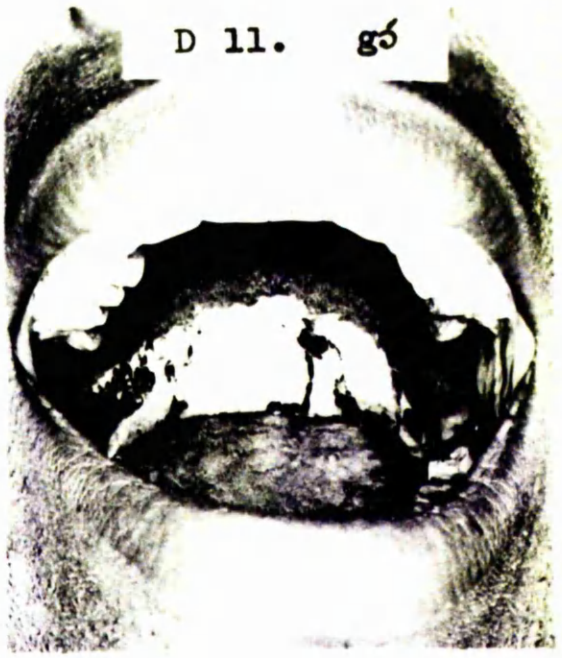

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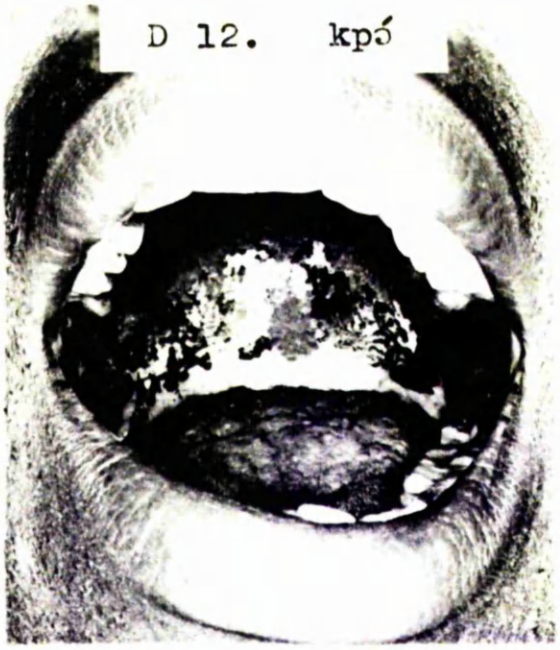

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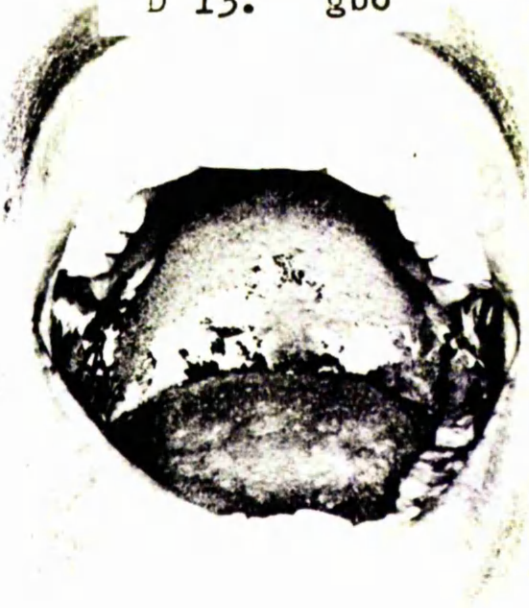

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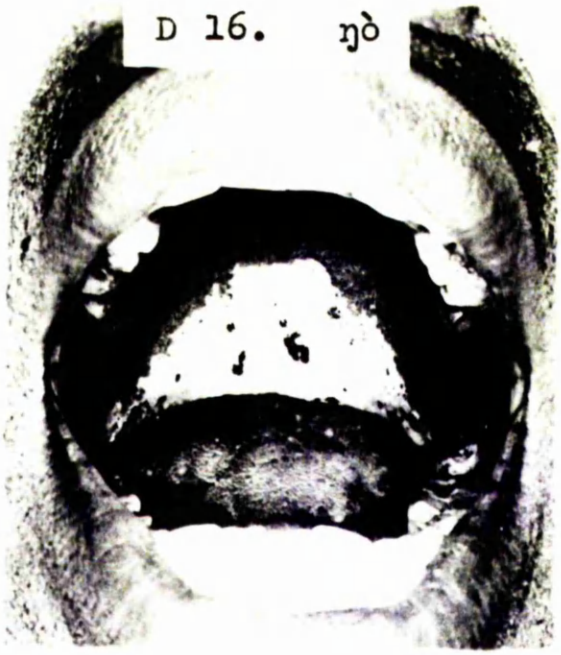

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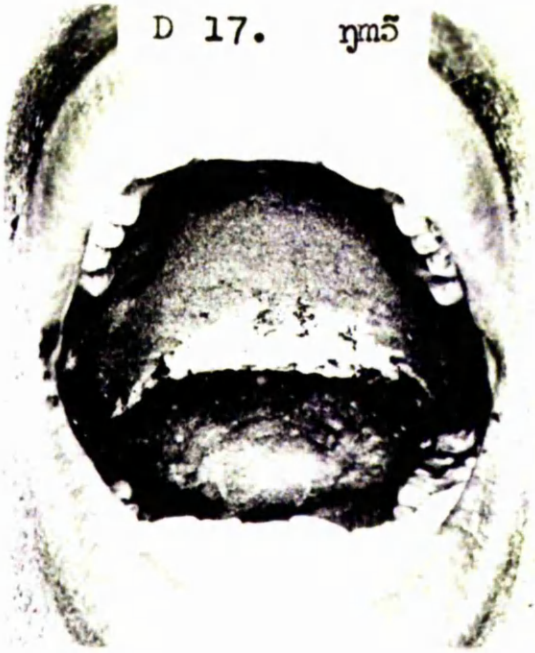

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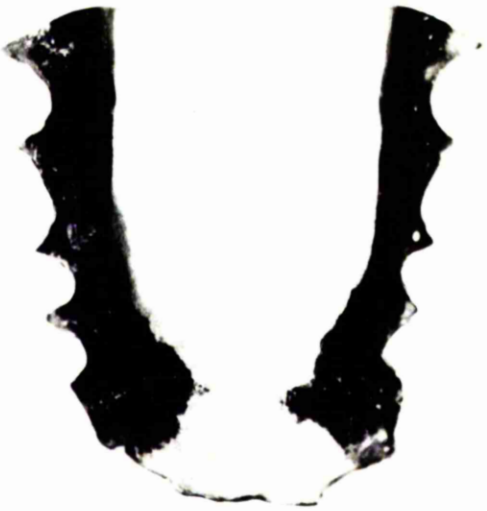

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27. nra

28. záá

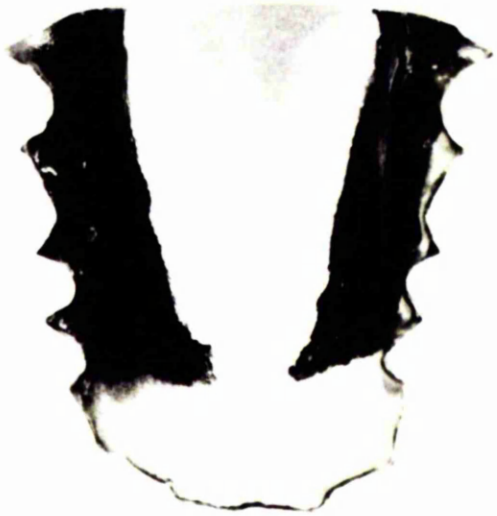
29. zɹáá

30. ɲà

31. ɲrã

32. tɹðó

26. ɜð



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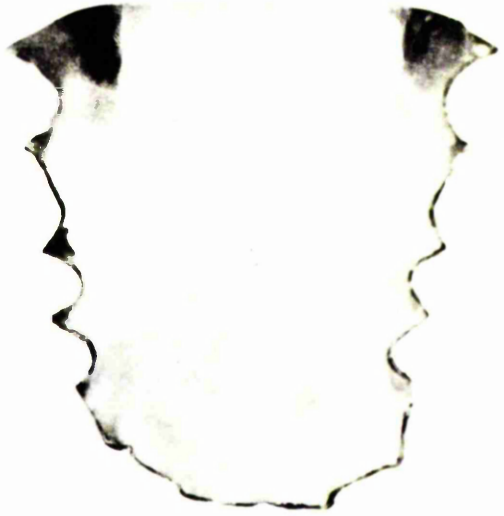
24. jò

25. wò



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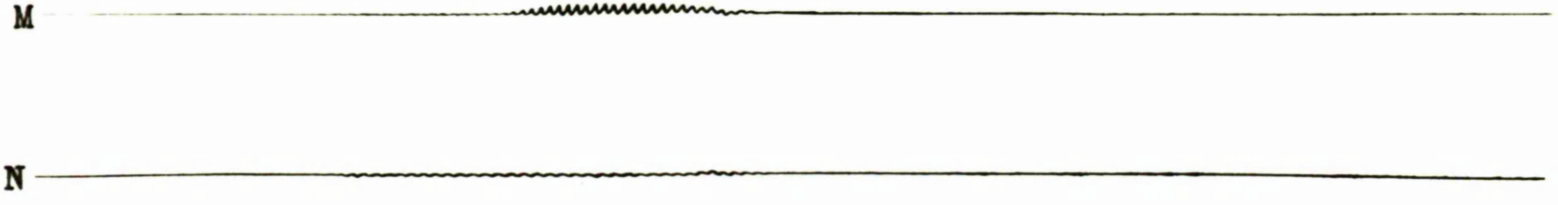

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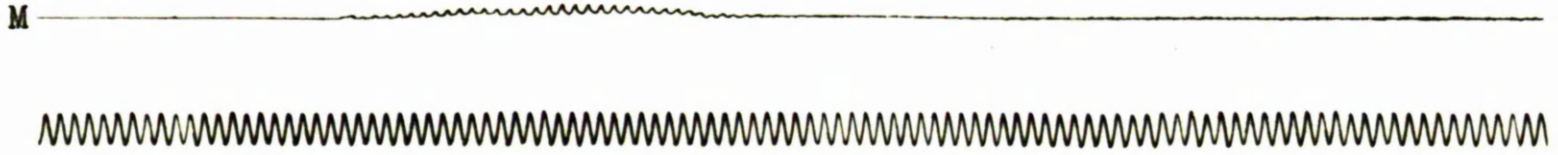

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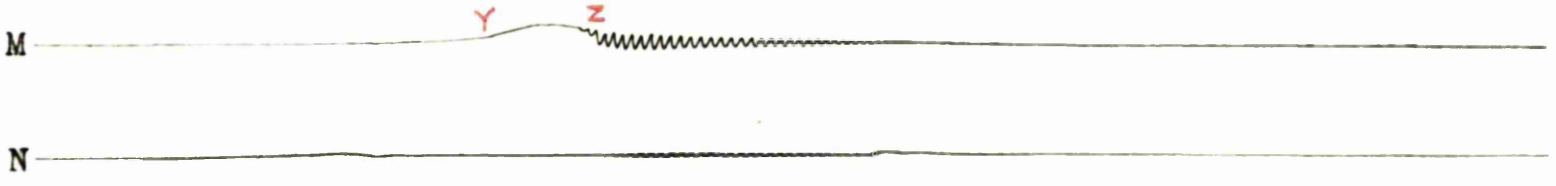

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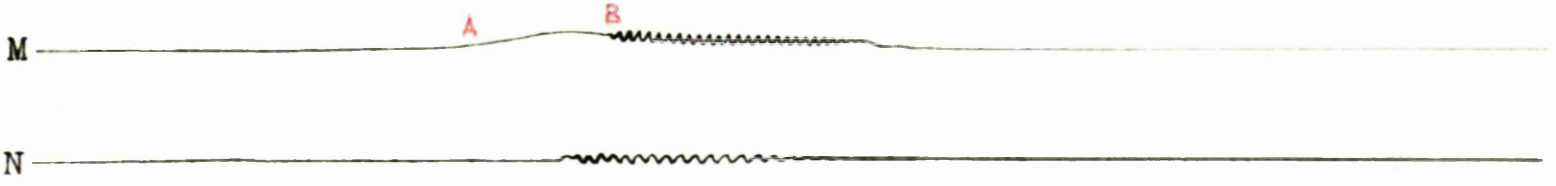

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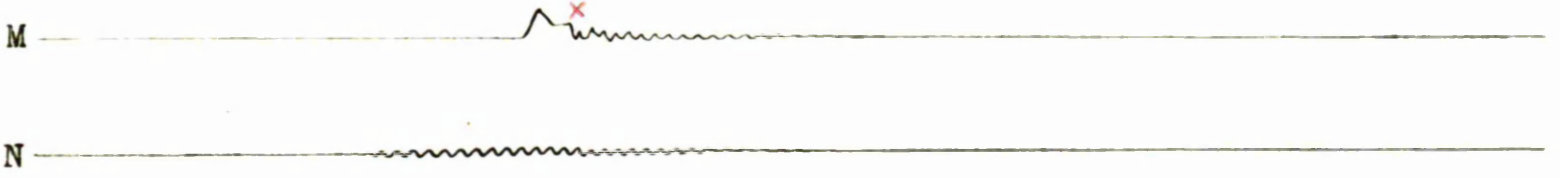

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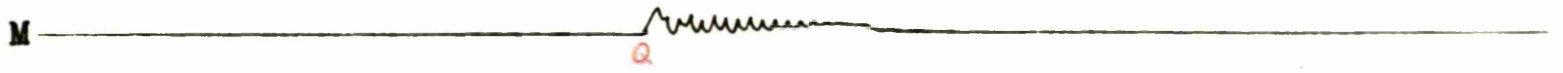

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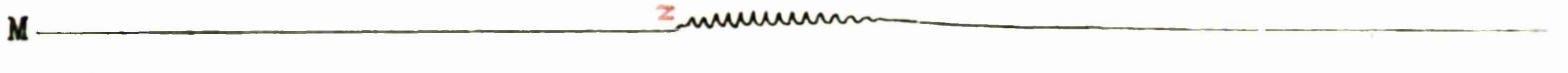

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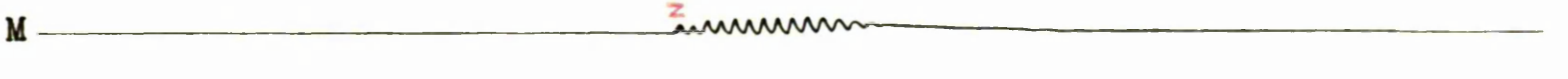

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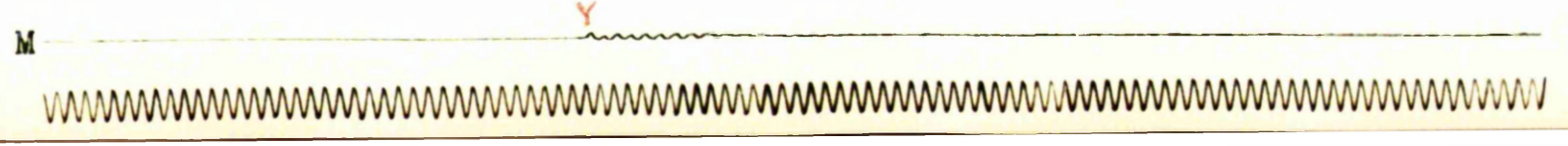

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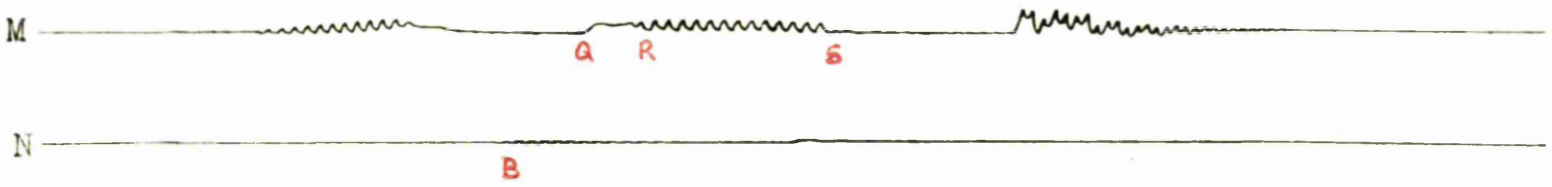

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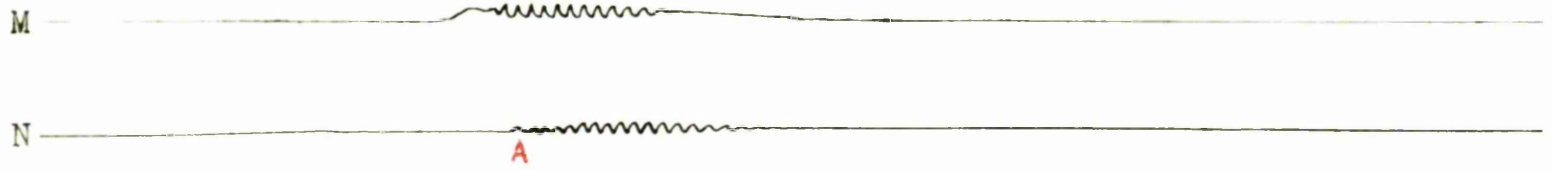

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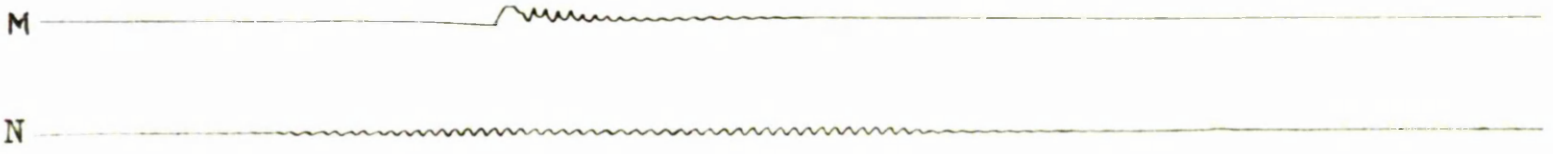

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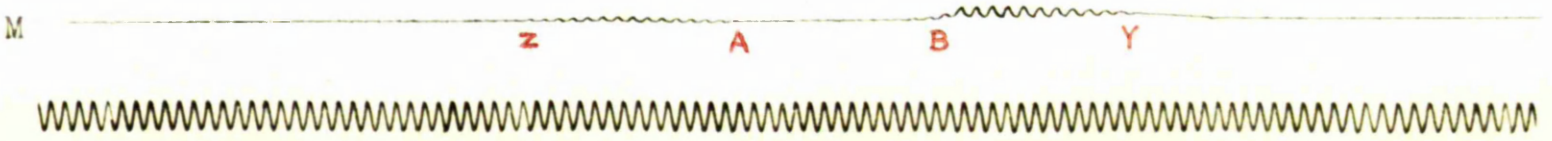


N

15. jò

M

N

10. nà

M

Z

N

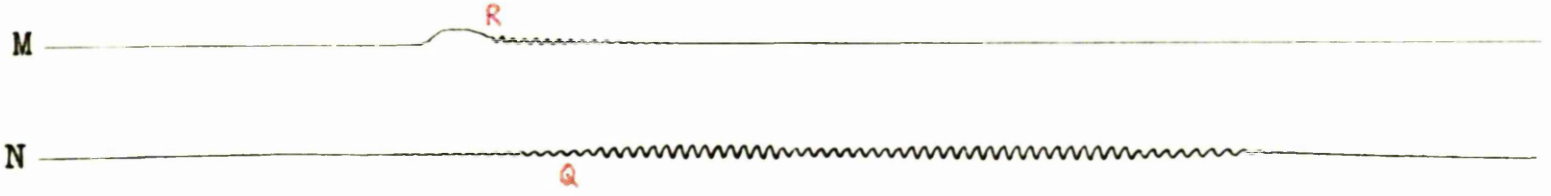
Q R

17. bunukú

M

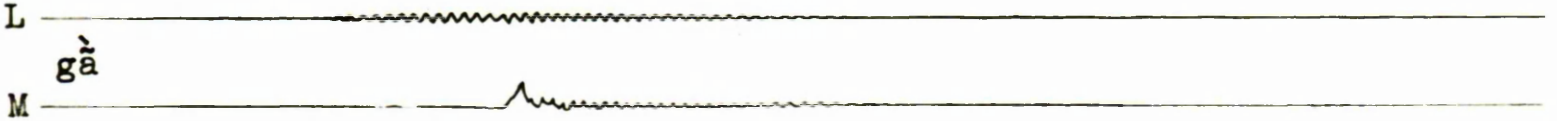
A B

18. tʃũ



19. ànũ̀nũ

20. kà̀

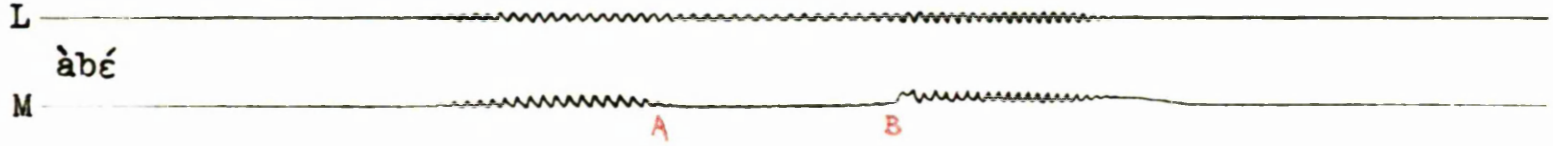


32. gà̀

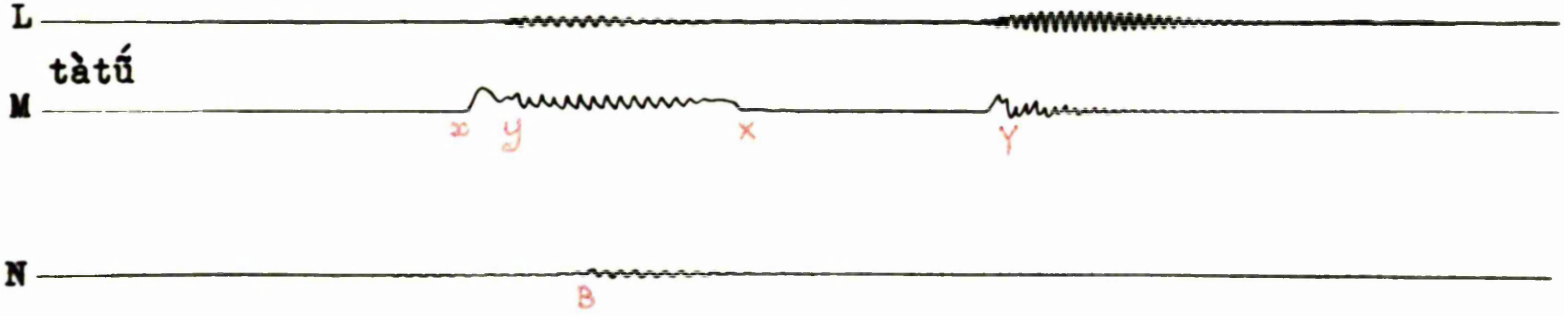
21. ó ɔ̀kpɔ̃̀ŋɔ́

23. ɔ̀pè

24. àbɛ́

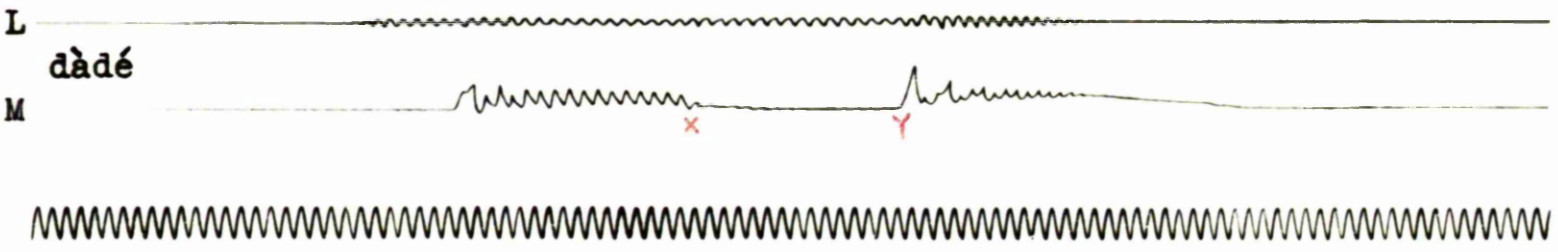


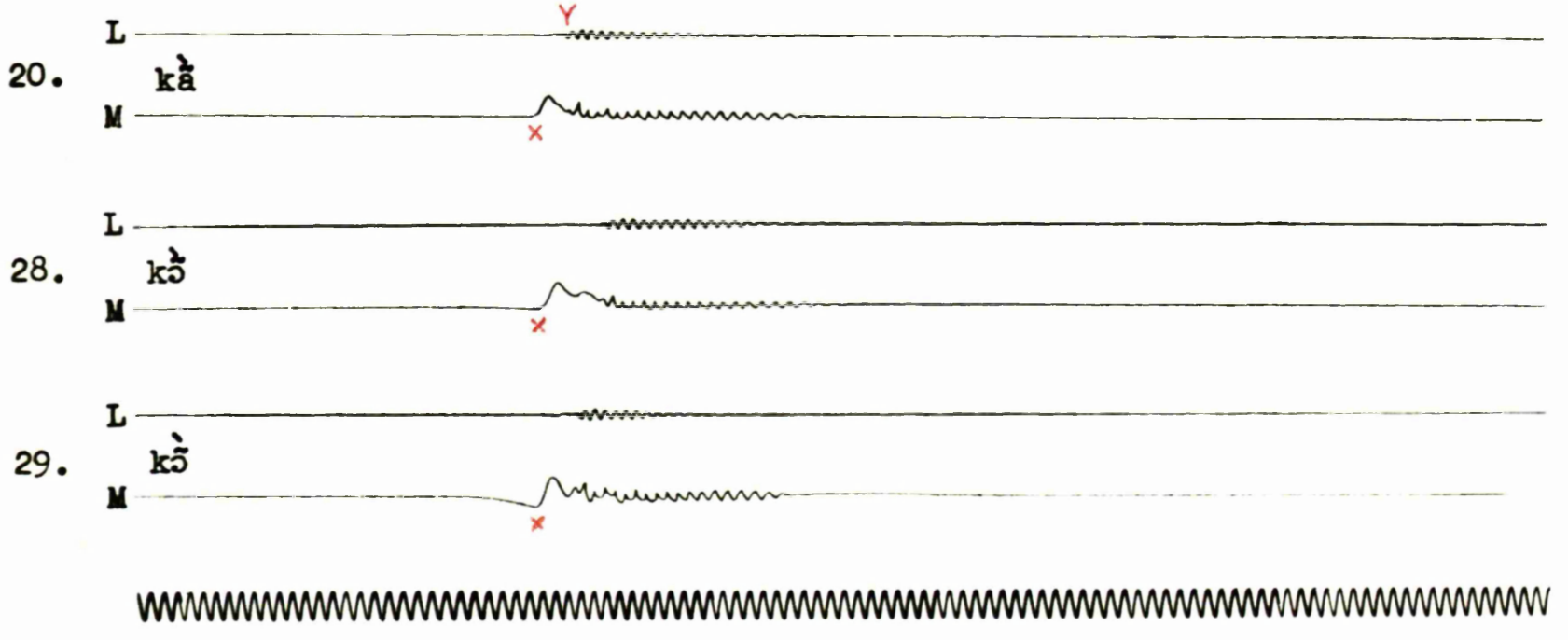
25. tàtǘ

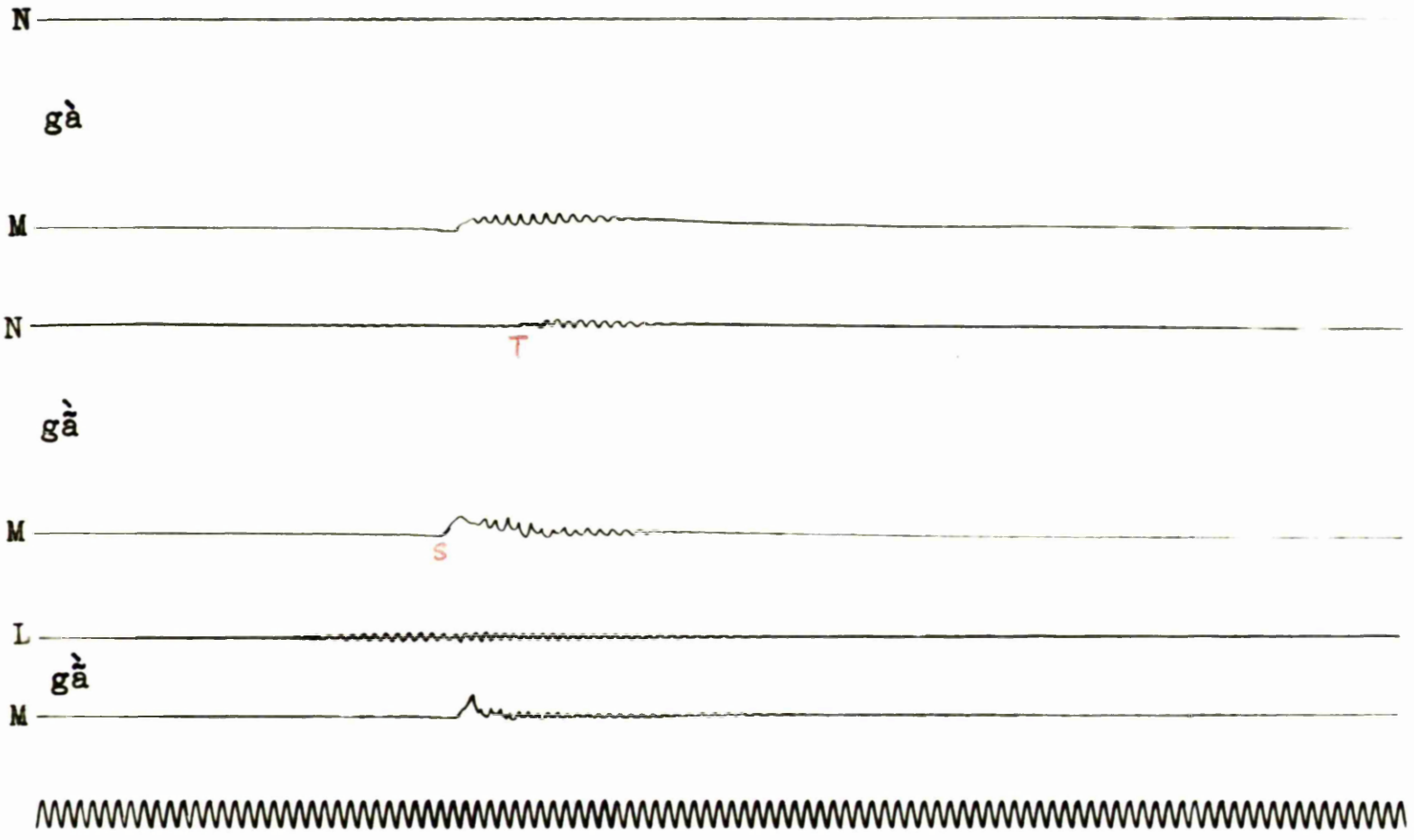


26. dǎ

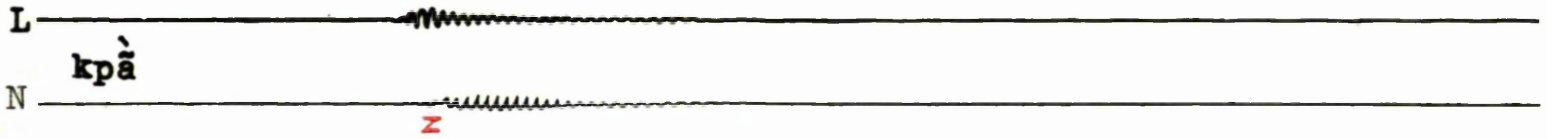
27. dàdé



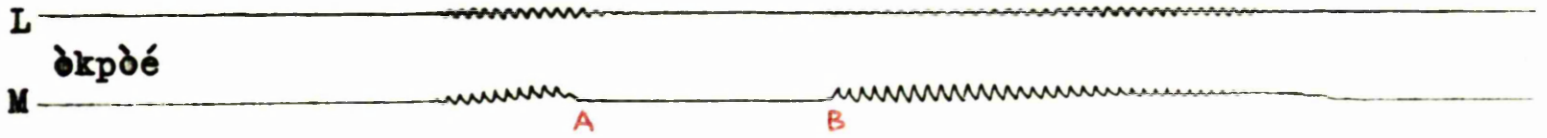

20.
kà̰
L
M
Y
X
28.
kɔ̰̀
L
M
X
29.
kɔ̰̀
L
M
X


N
30. gà
M
N
T
31. gã̀
M
S
L
32. gã̀
M

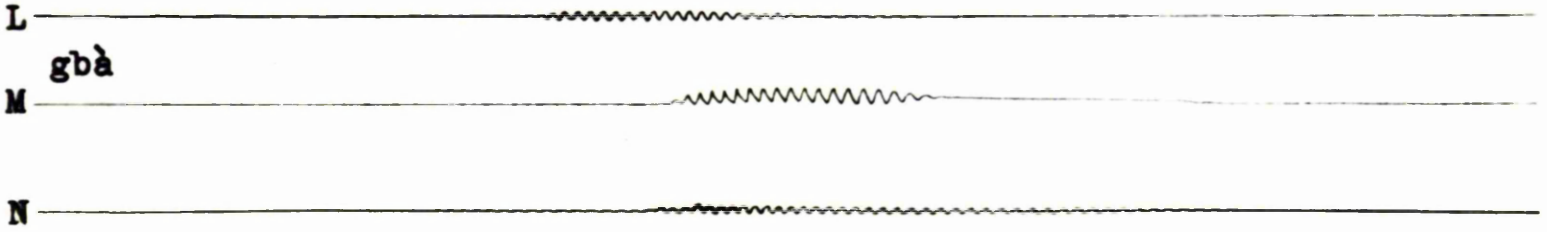
33. kpã̀



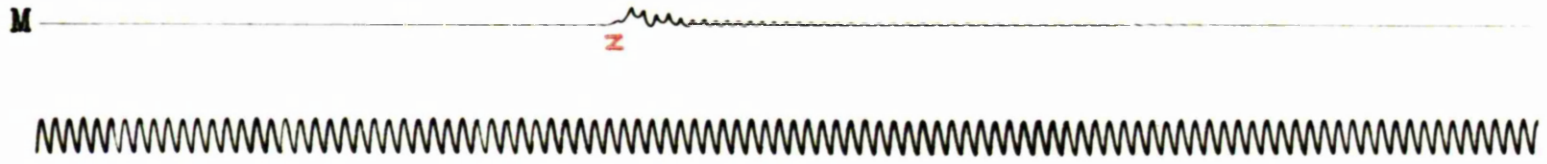
34. ɔ̀kpɔ̀é



35. gbà

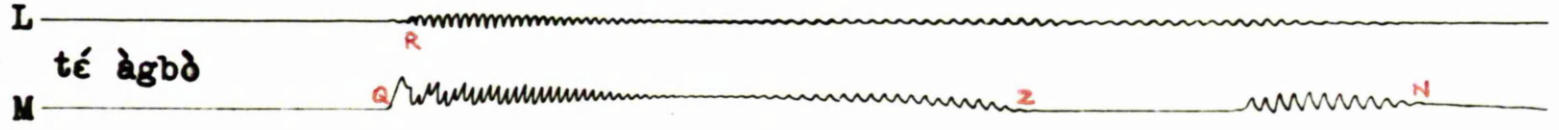


36. gbɔ̃̀ɔ̃̀



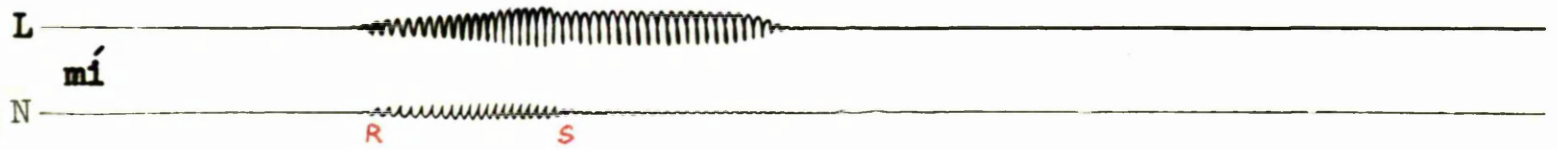
37. táàgbò

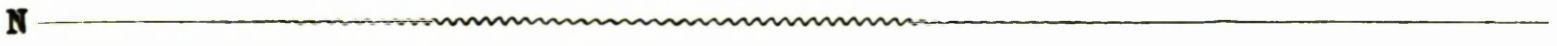
38. té àgbò



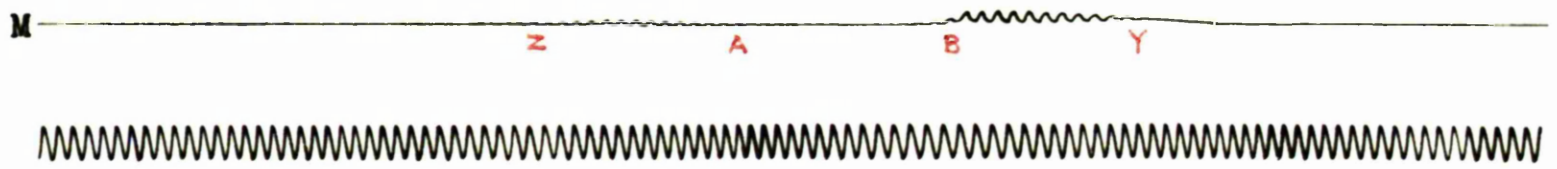
39. tɛ́ᵑ àgbò

40. mí

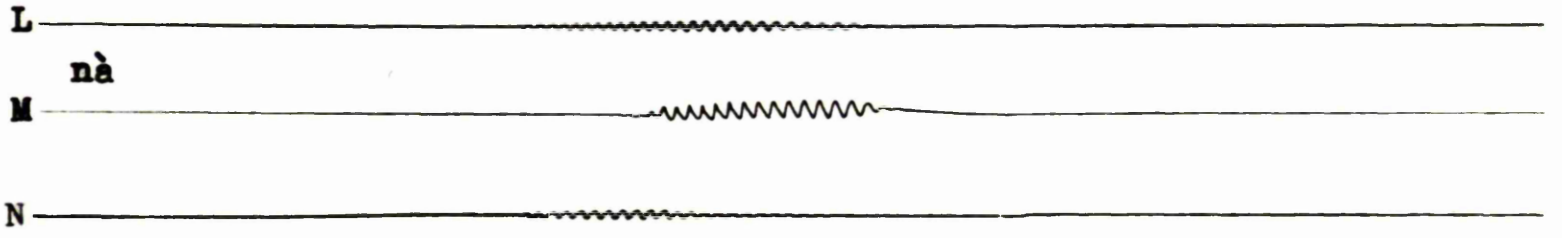




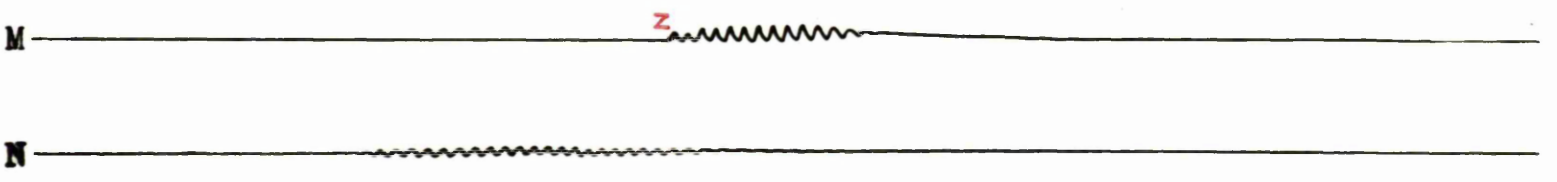
14. mɔ̀mɔ́



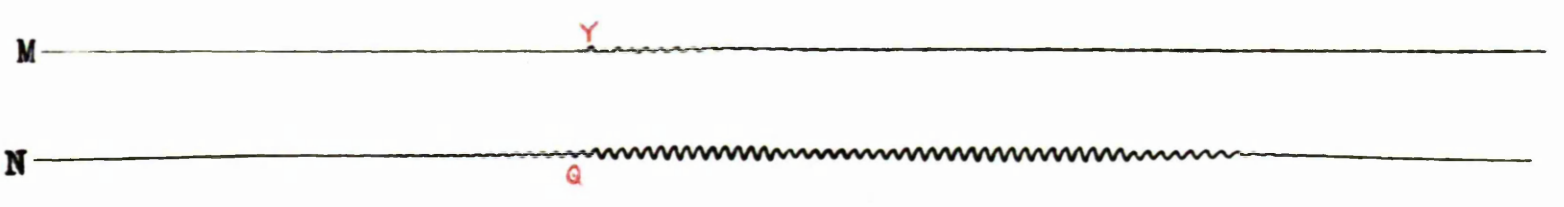
41. nà



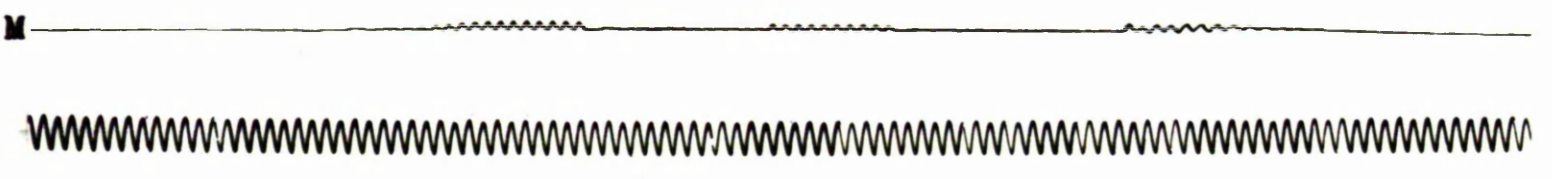
10. nà



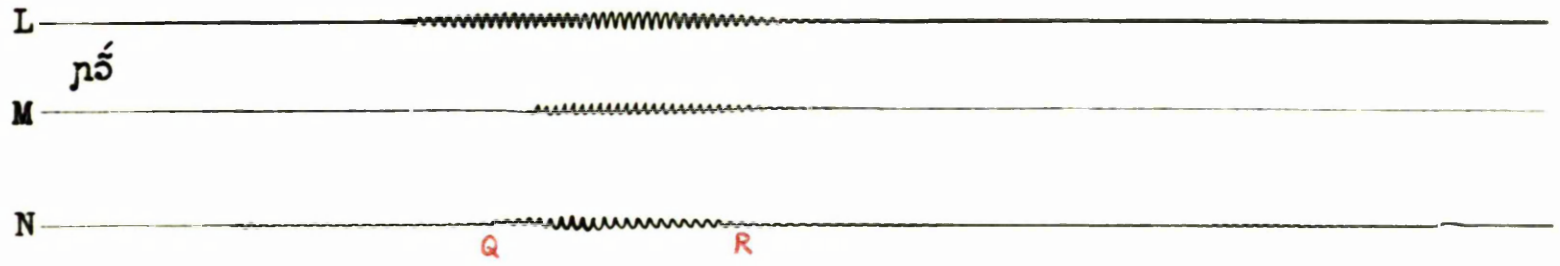
7. nǎ



19. ànǔnǔ

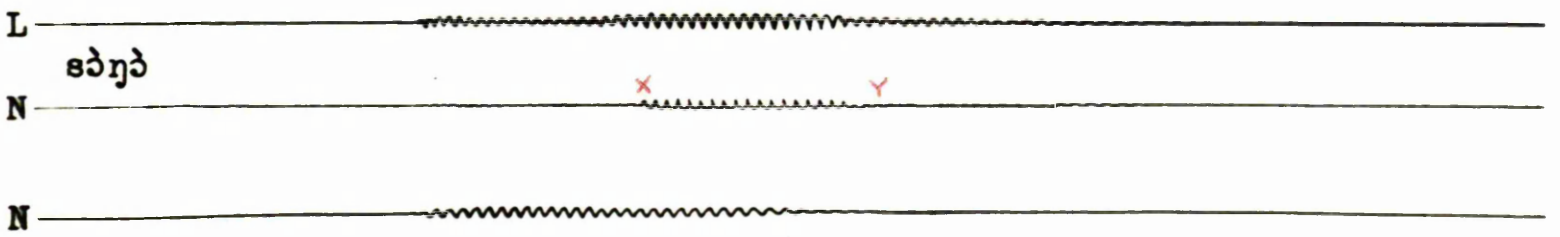


42. ɲɔ̃

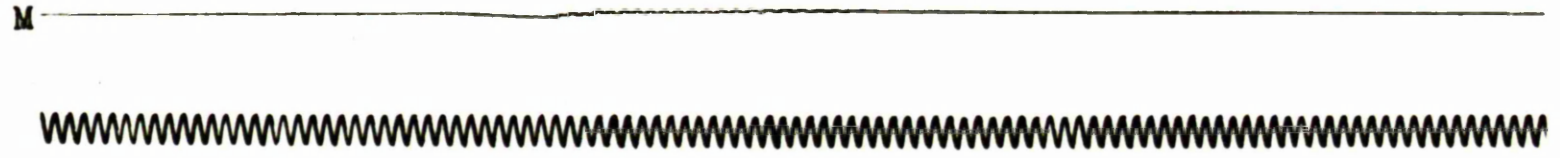


17. bupukú

43. sɔ̀ŋɔ̀



44. ŋɔ̀



N

45. ŋmɔ̃

M S

L

22. ŋmɔ̀ŋmɔ̀

M Q T

L

46. l̩ãmí

N R S

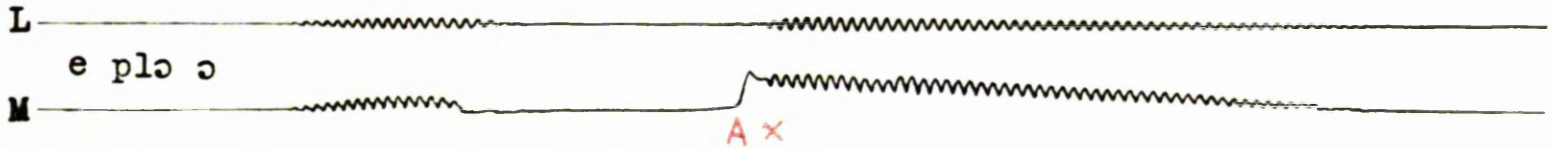
N

47. l̩ɔ̃

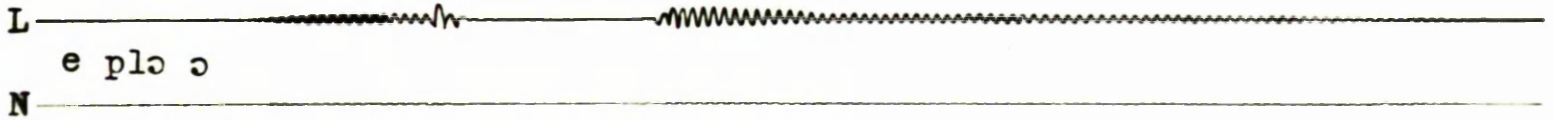
M Q Y

48. lò

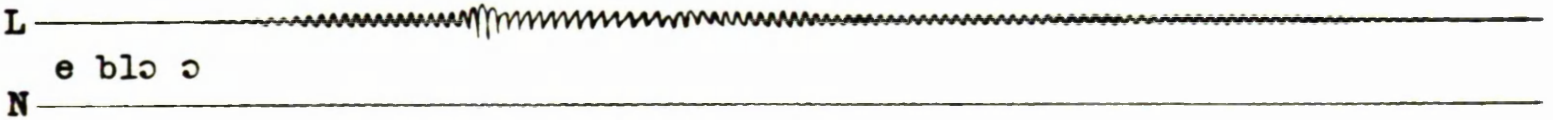
16. e plɔ ɔ

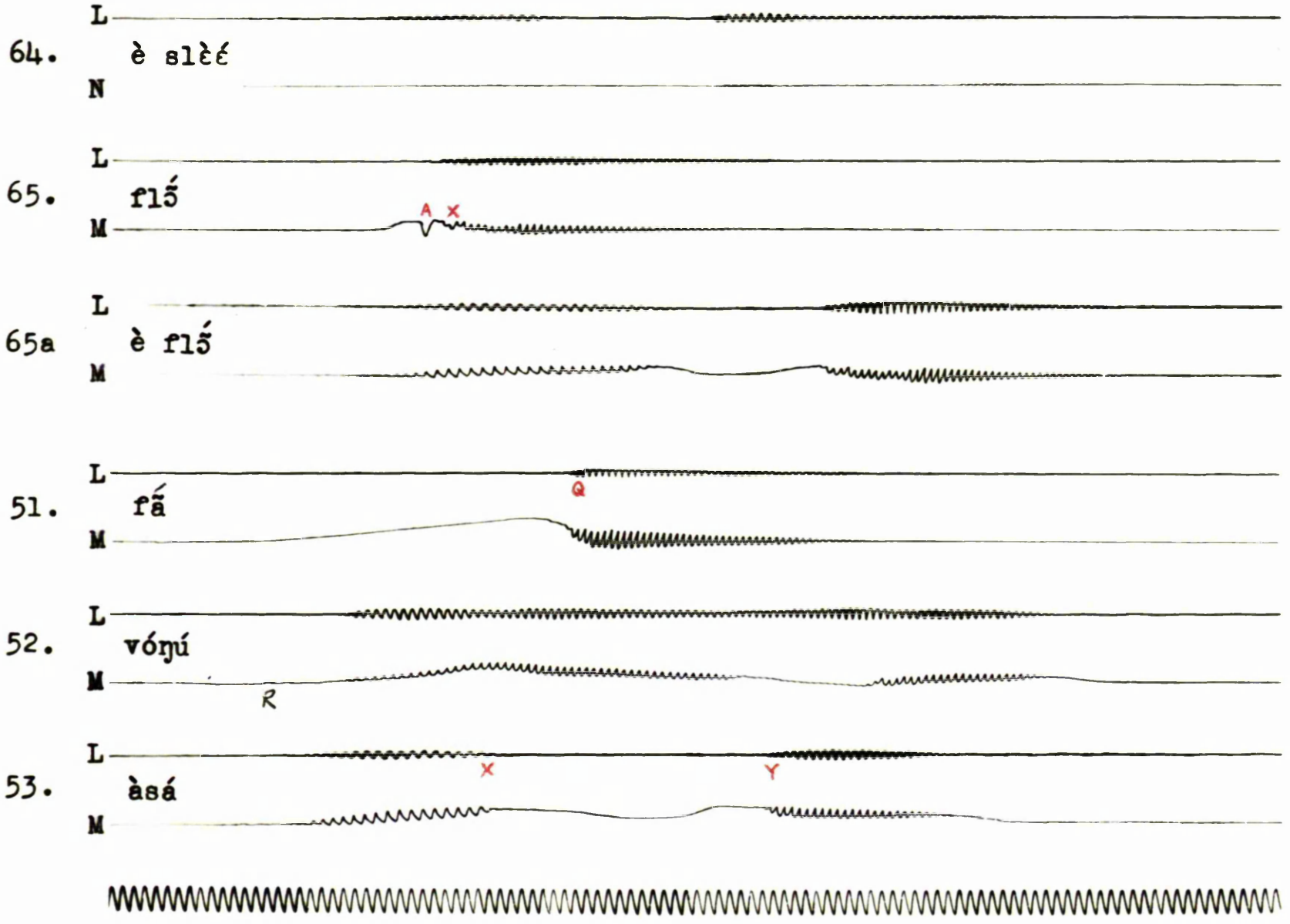


49. e plɔ ɔ



50. e blɔ ɔ




L
64.
è slɛ̀ɛ́
N
L
65.
flɔ̃́
A X
M
L
65a
è flɔ̃́
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fã́
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52.
vónú
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R
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Y
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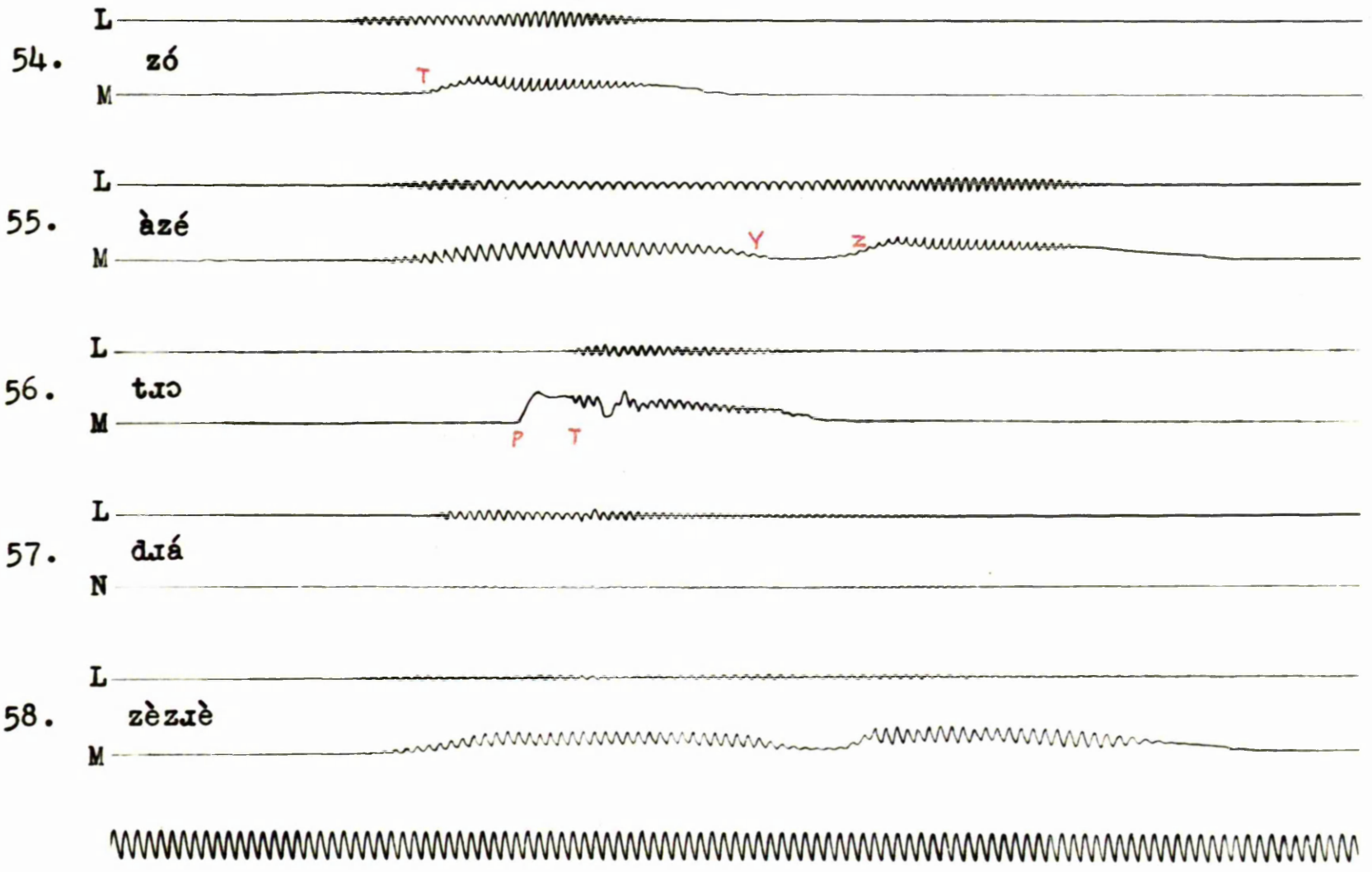
àsá
M


L
54.
zó
T
M
L
55.
àzé
Y
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56.
tɹɔ
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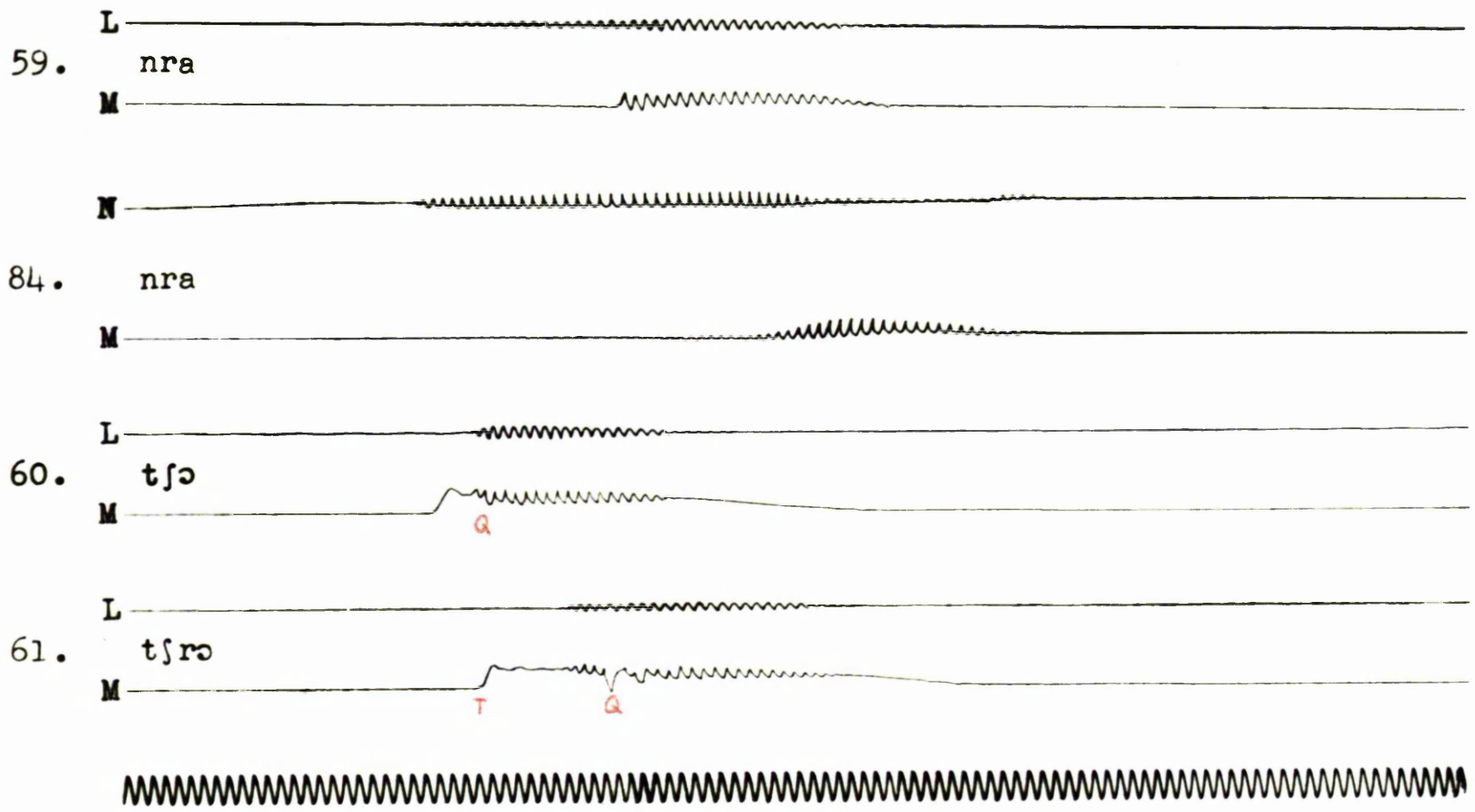
T
M
L
57.
dɹá
N
L
58.
zèzɹè
M


L
59.
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Q
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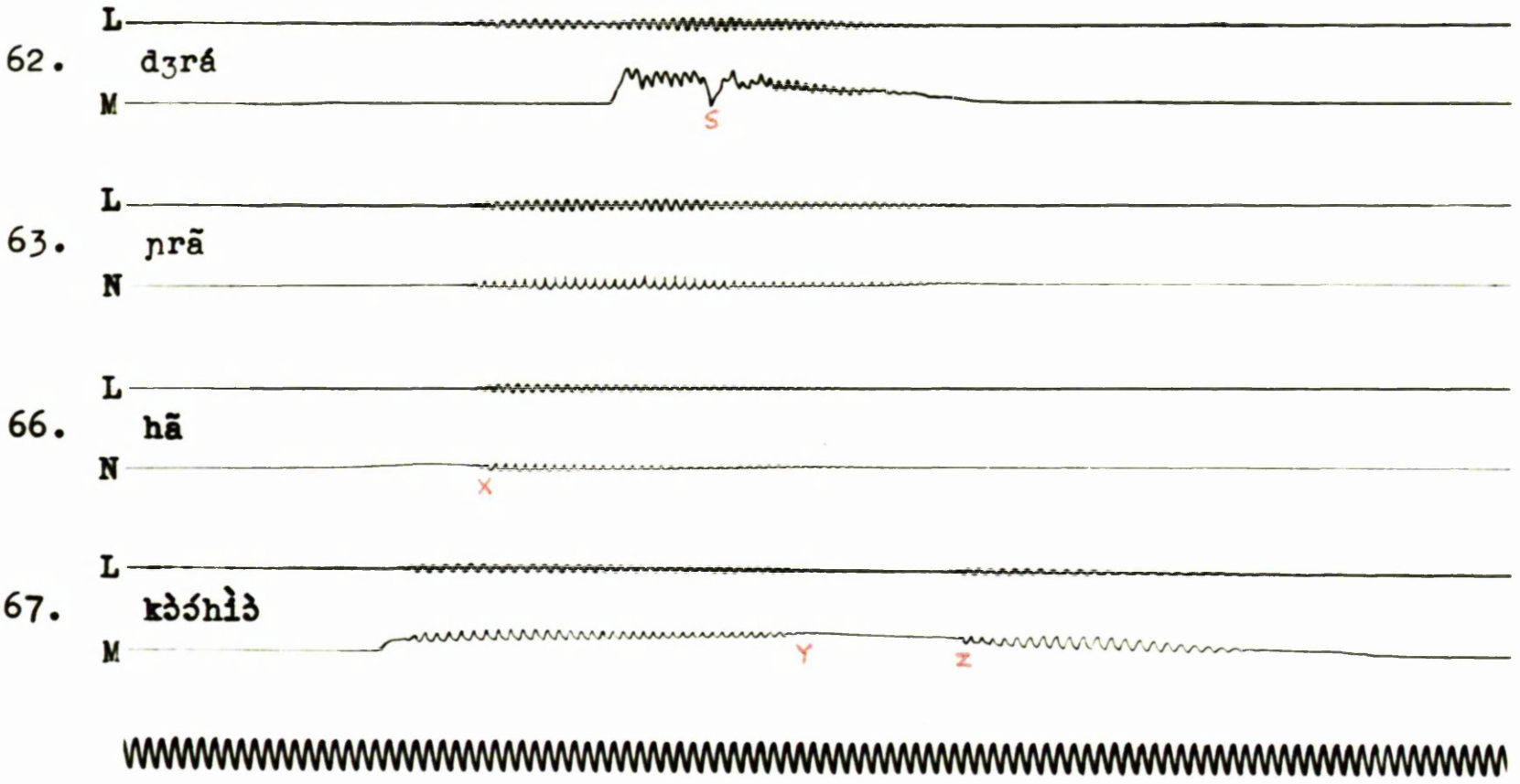
61.
tʃrɔ
M
T
Q

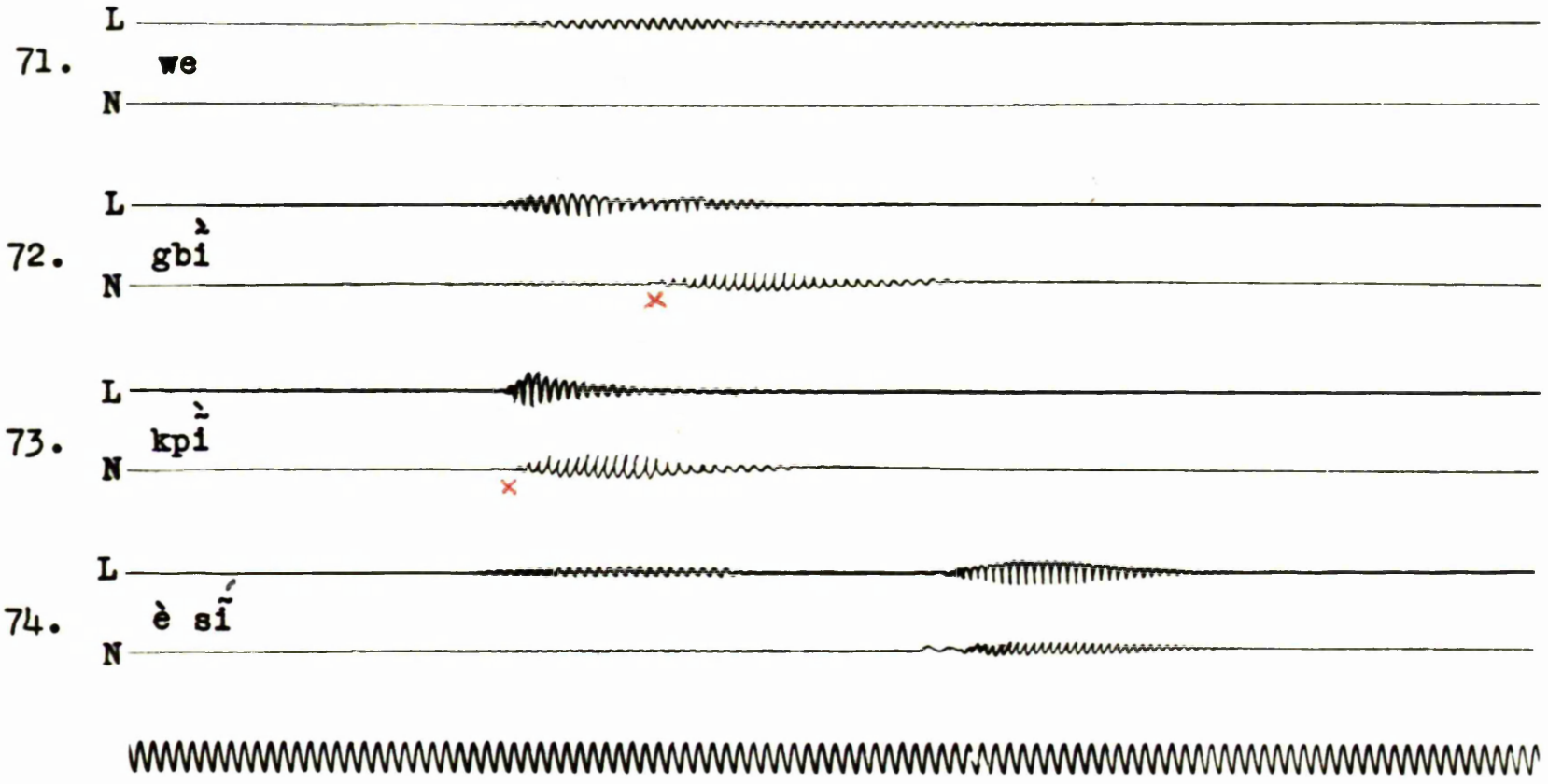

62.
L
dʒrá
M
S
63.
L
ɲrã
N
66.
L
hã
N
X
67.
L
kɔ̀ɔ́hì̀ɔ̀
M
Y
Z

68. kùtʃá

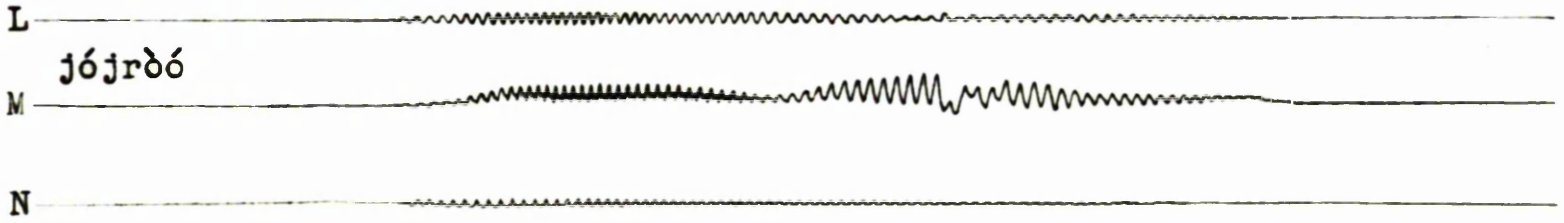
60. tʃɔ

69. kòdʒó

70. ɟúmĩũ


L
71.
we
N
L
72.
gbì
N
L
73.
kpì
N
L
74.
è sí
N

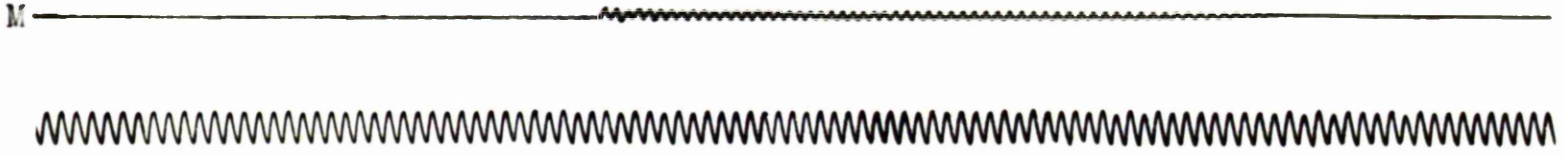
75. jójrɔ̀ó



77. bɔ́ ɔ

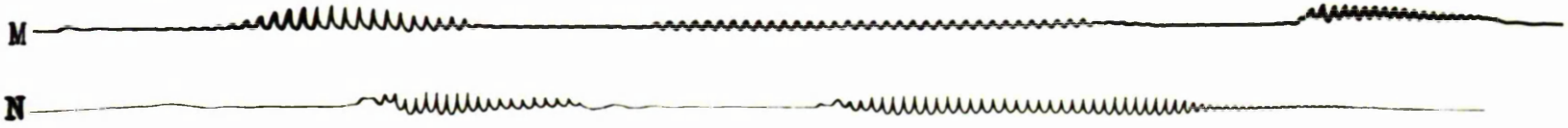
78. bɔ̃́ ɔ̃

83. nɔ̃́ ɔ̃



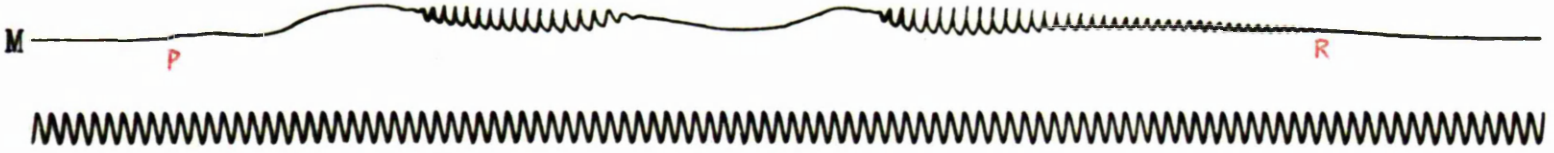
79. wà nã? àgbó

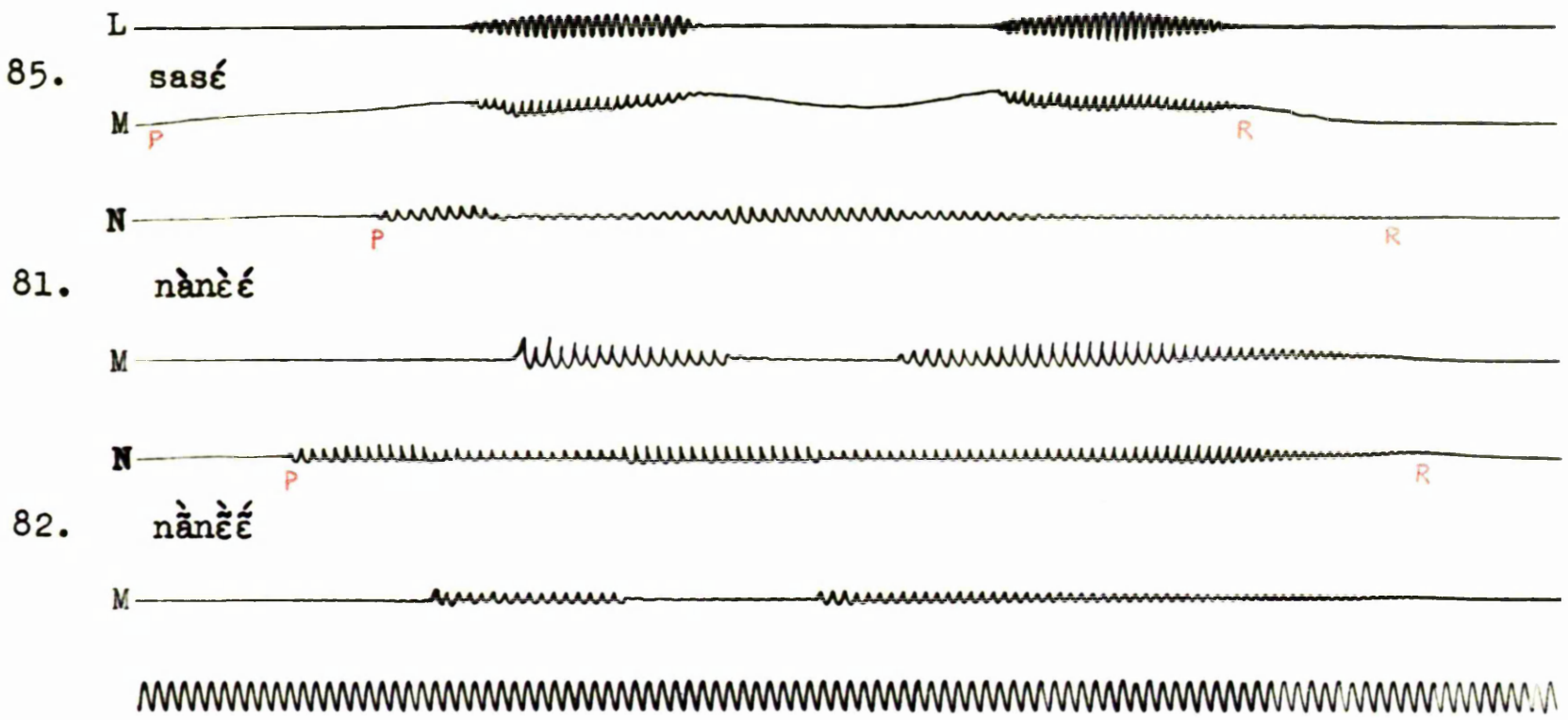
80. wà nã: gbó

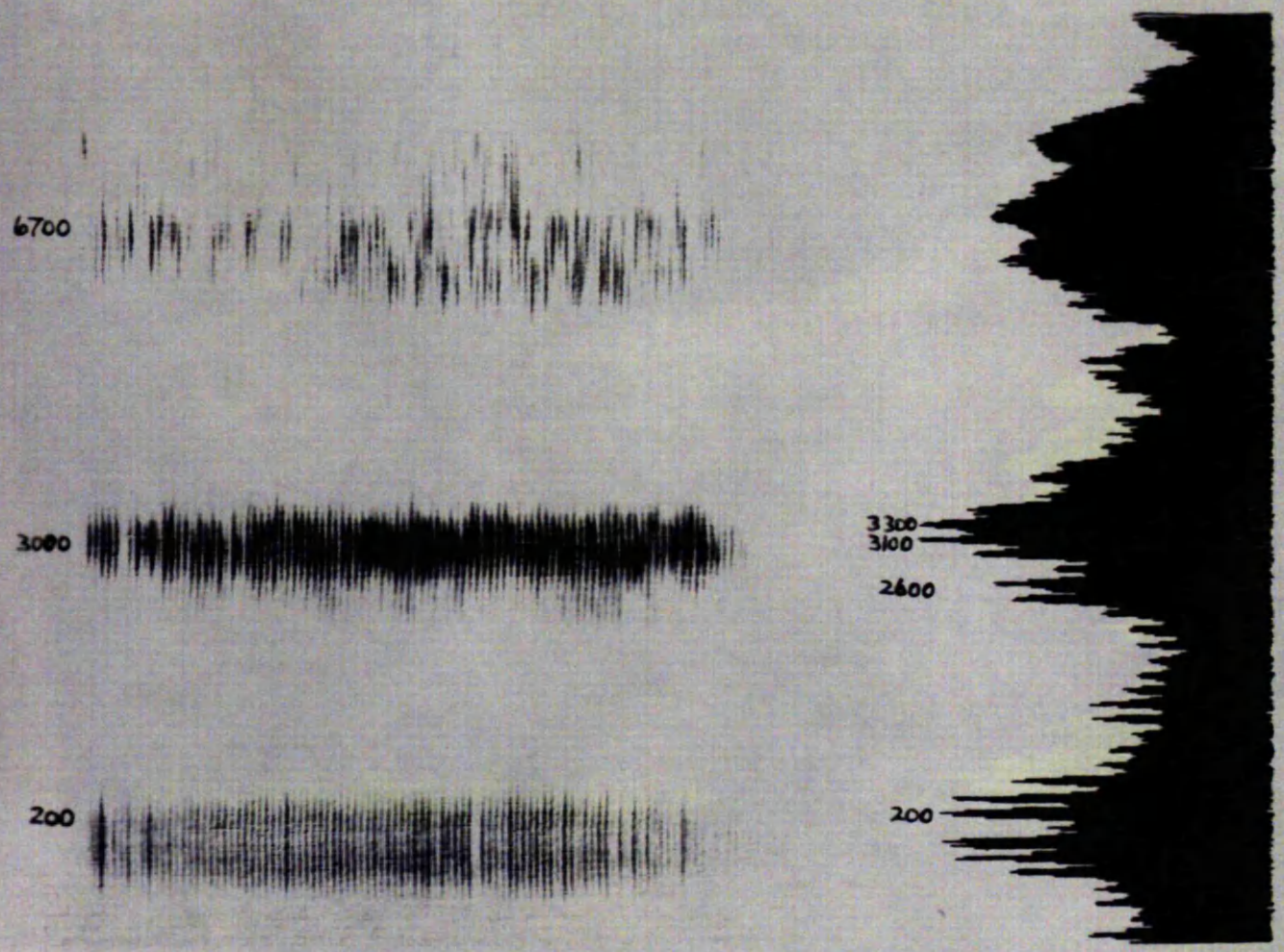


75a. sǎsɛ̀ɛ́

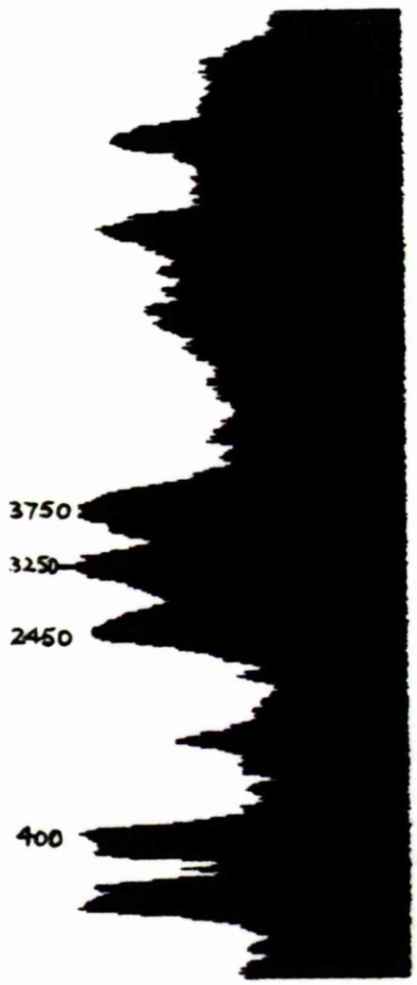
76. sàsɛ̀ɛ́



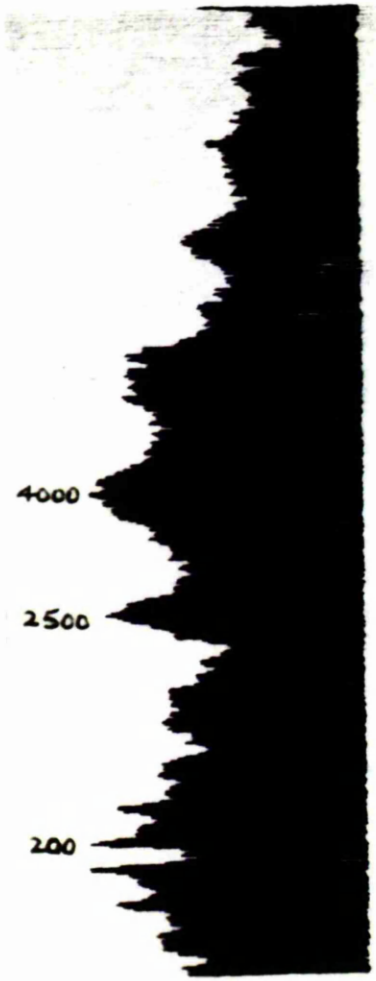

L
85. sasɛ́
M
P
R
N
P
R
81. nànɛ̀ɛ́
M
N
P
R
82. nǎnɛ̃̀ɛ̃́
M



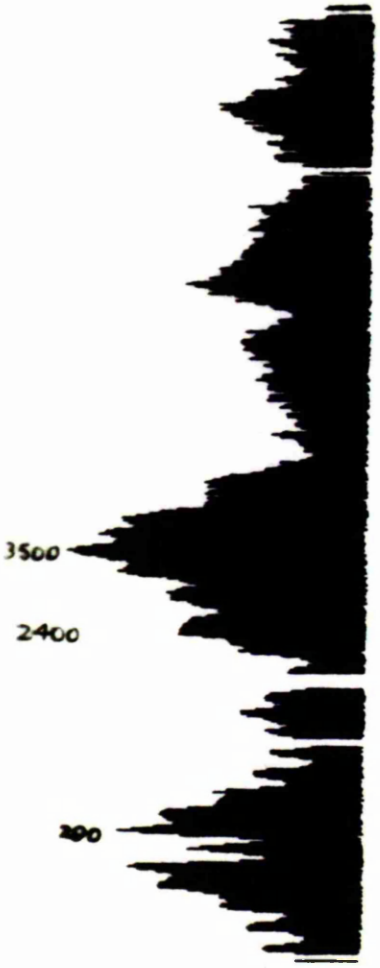
1. hĩ:



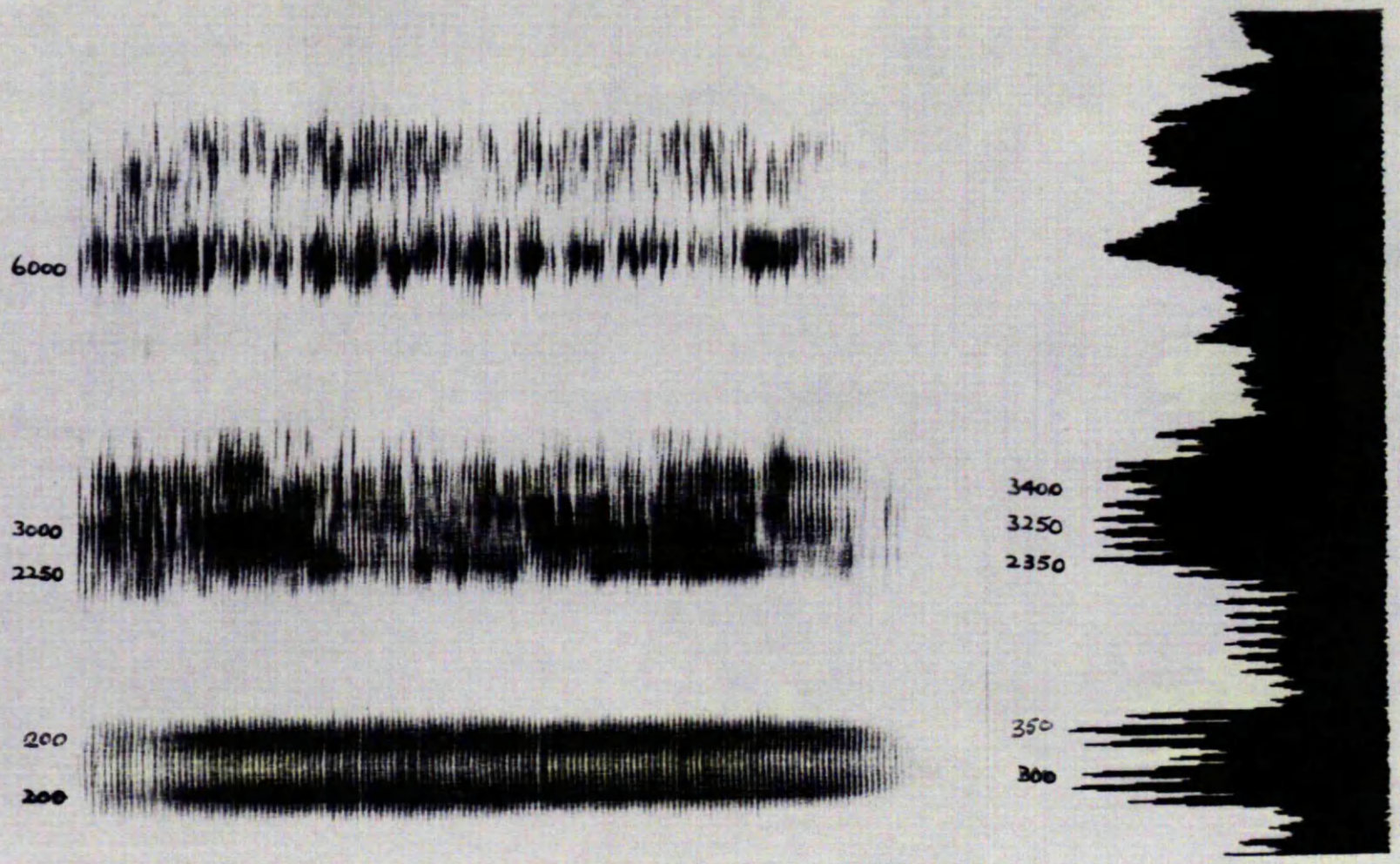
1a. (i) ĩ [⌣]



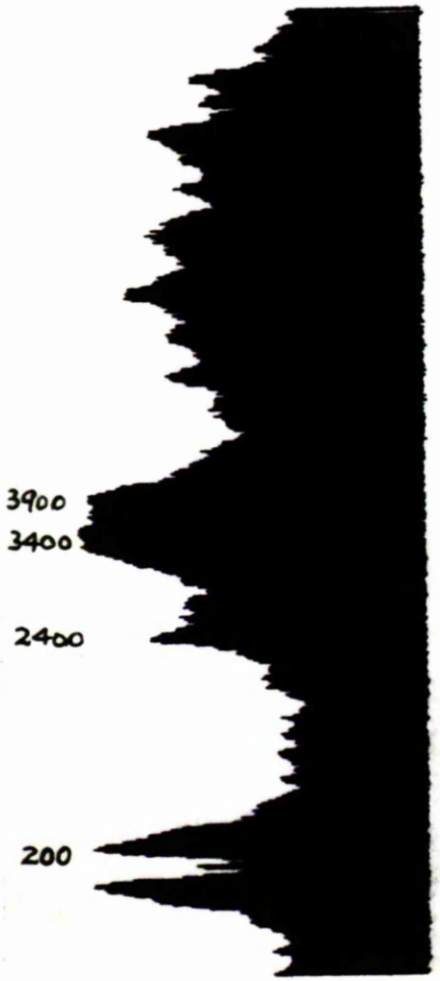
1a. (ii) ĩ [⌢]



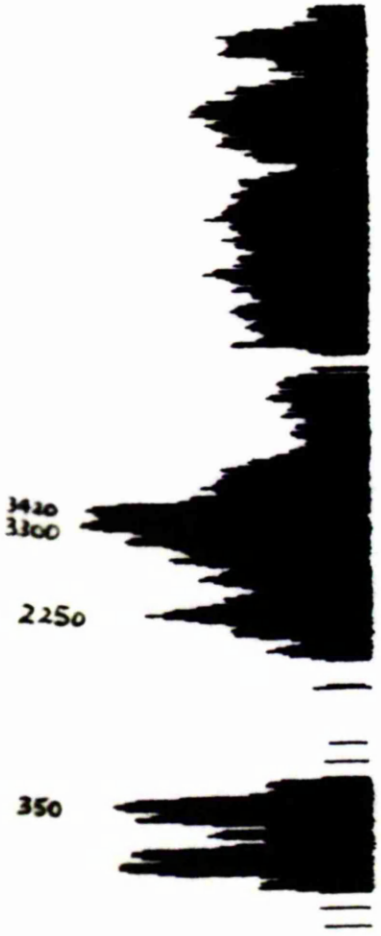
1a. (iii) i̯:



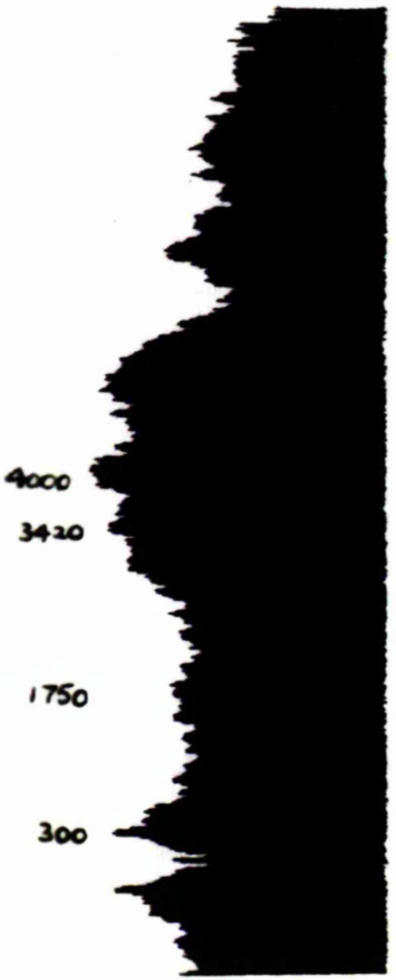
2. hi:



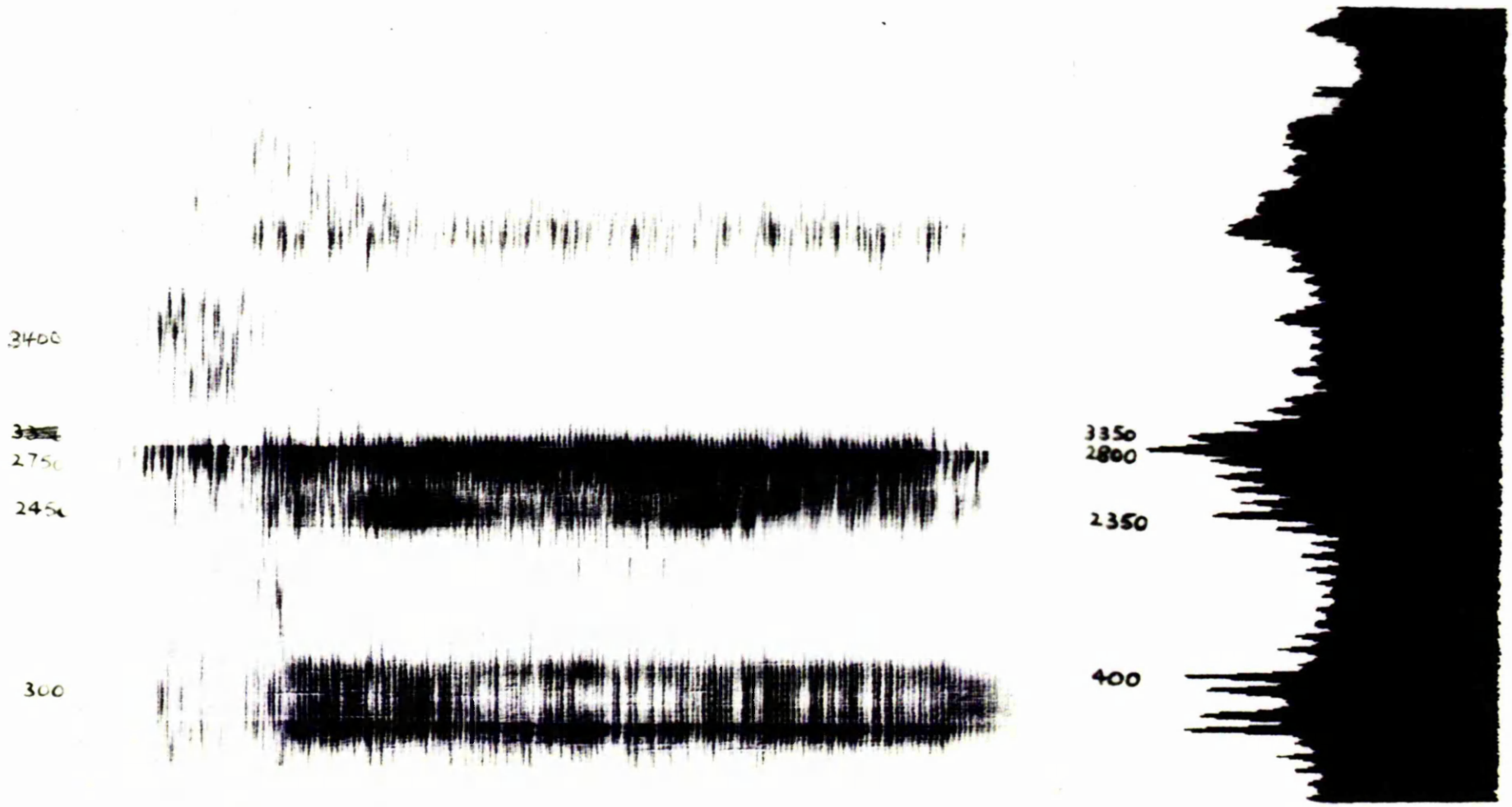
2a. (i) i [ˊ]



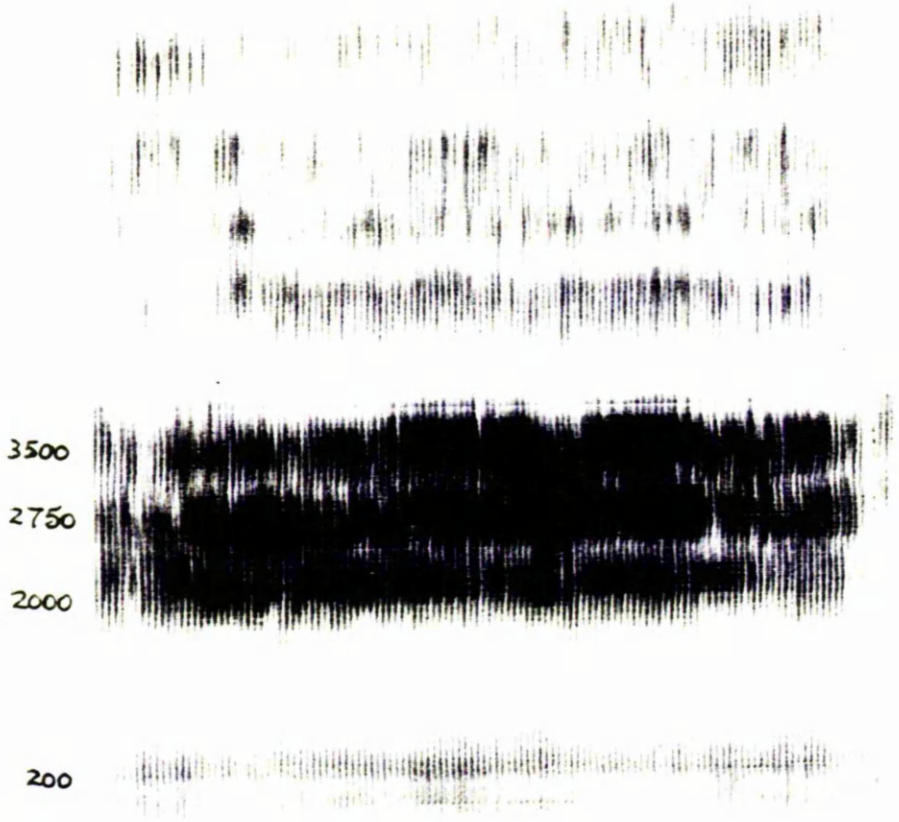
2a. (ii) i [ˋ]



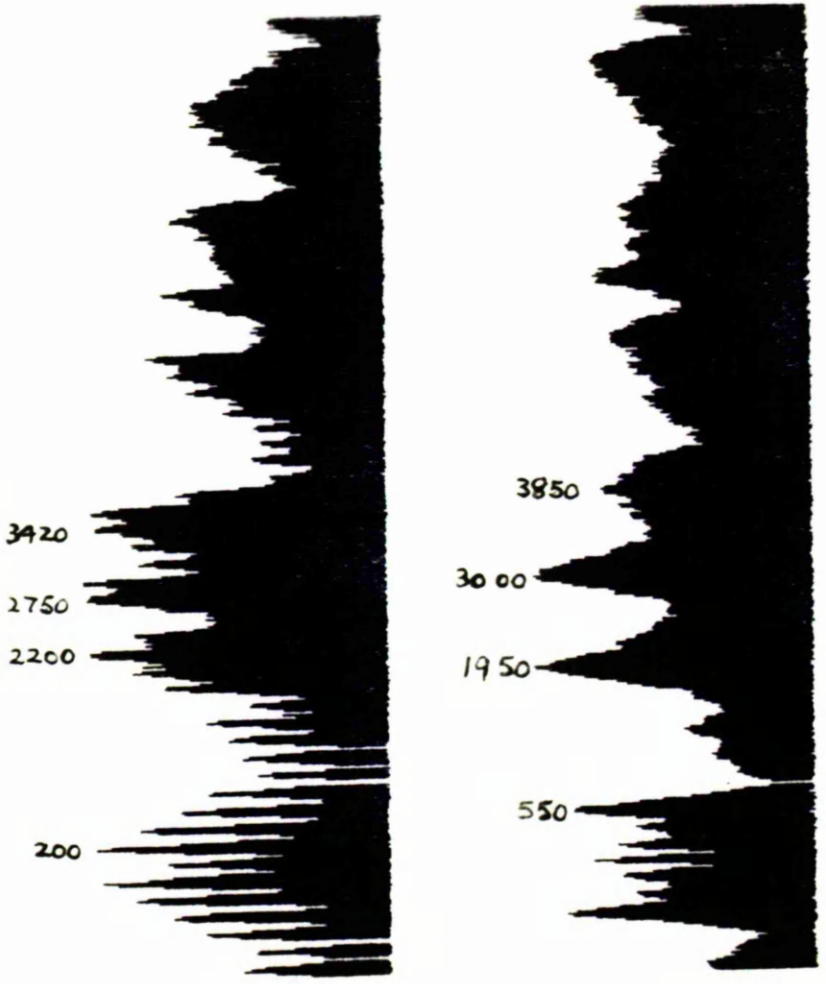
2a. (iii) i̥



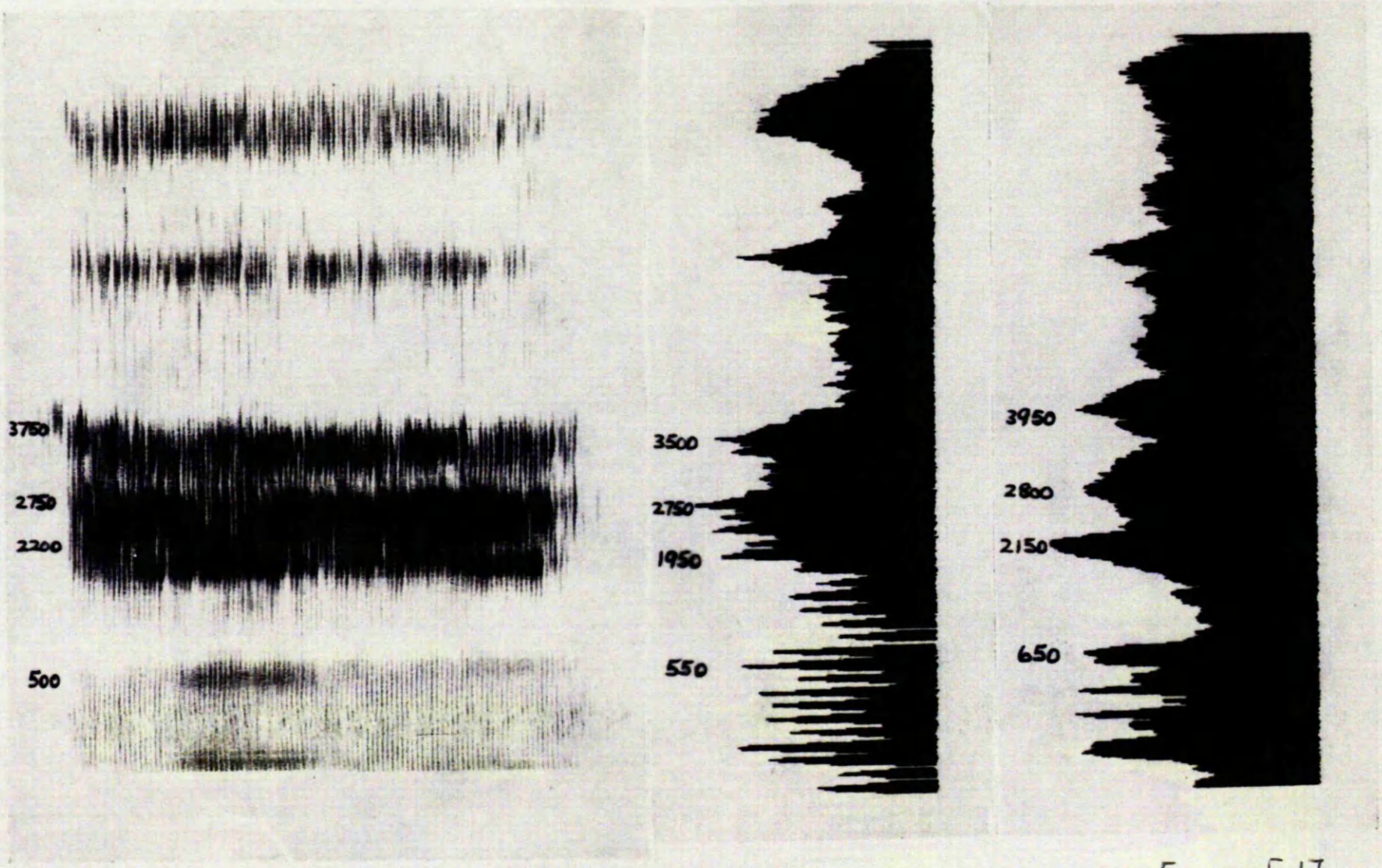
3. he:



4. hɛ̃:

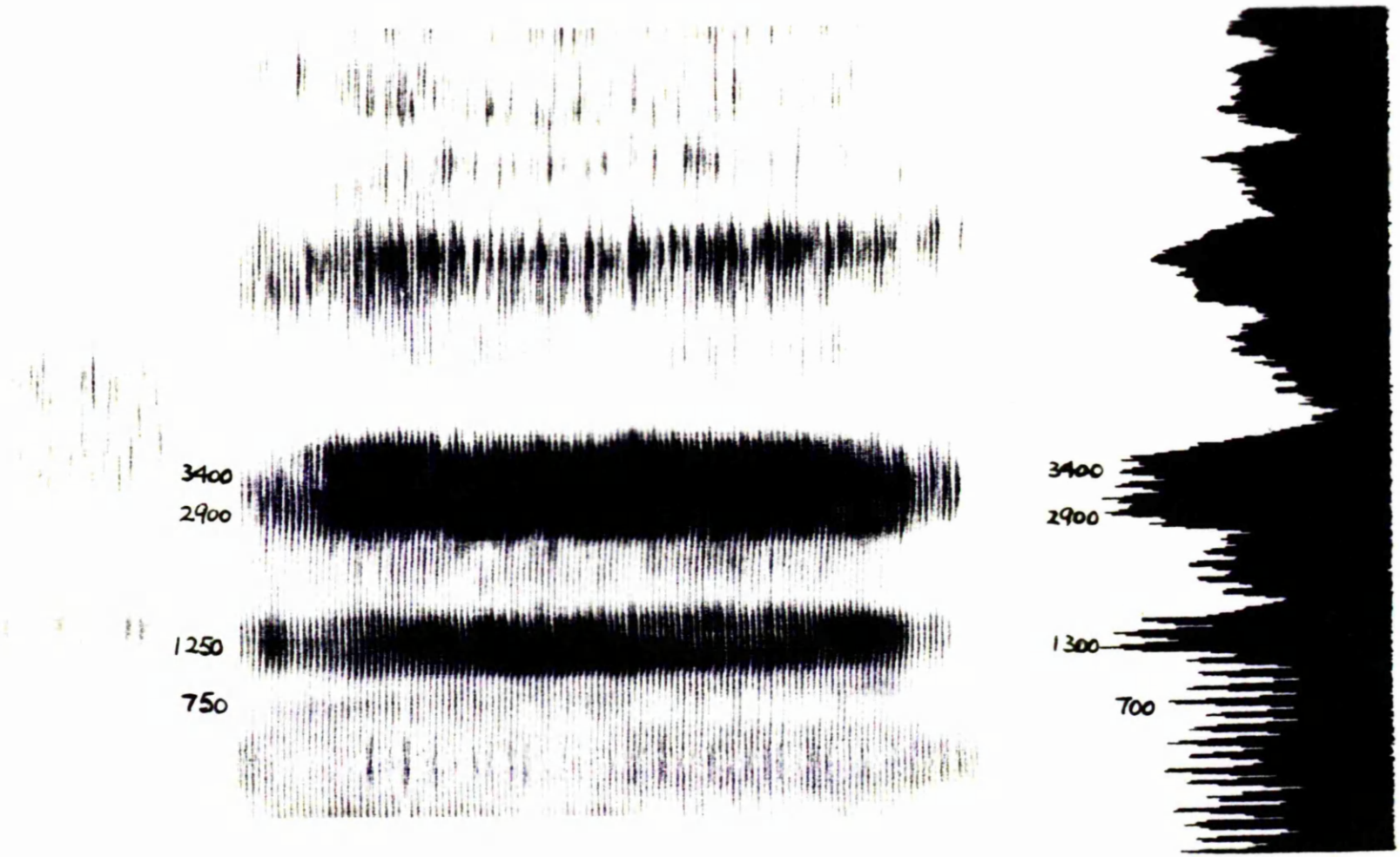


4a. ɛ̃ [ɔ̃]

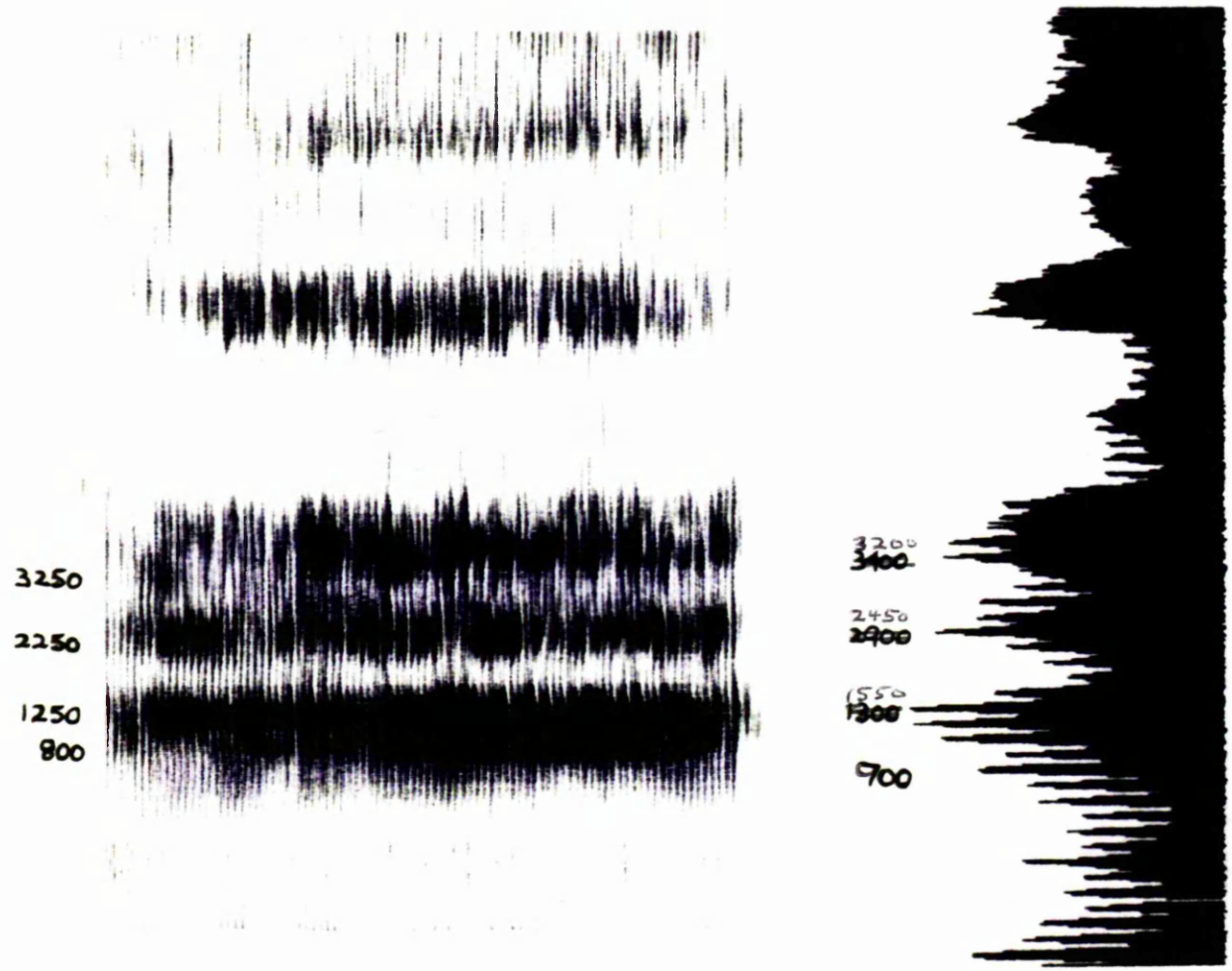


5a ɛ [ɹ]

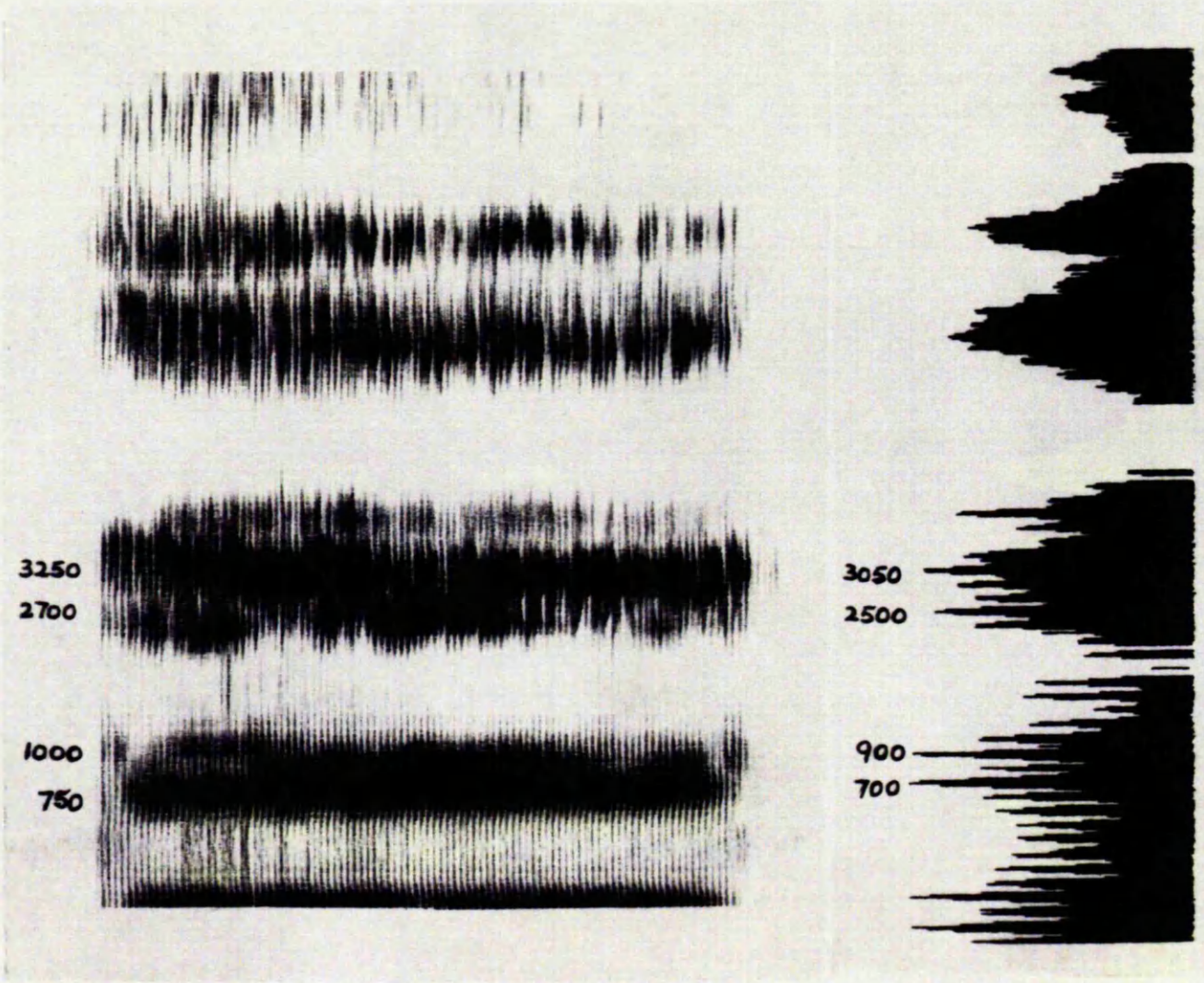
5. hɛ:



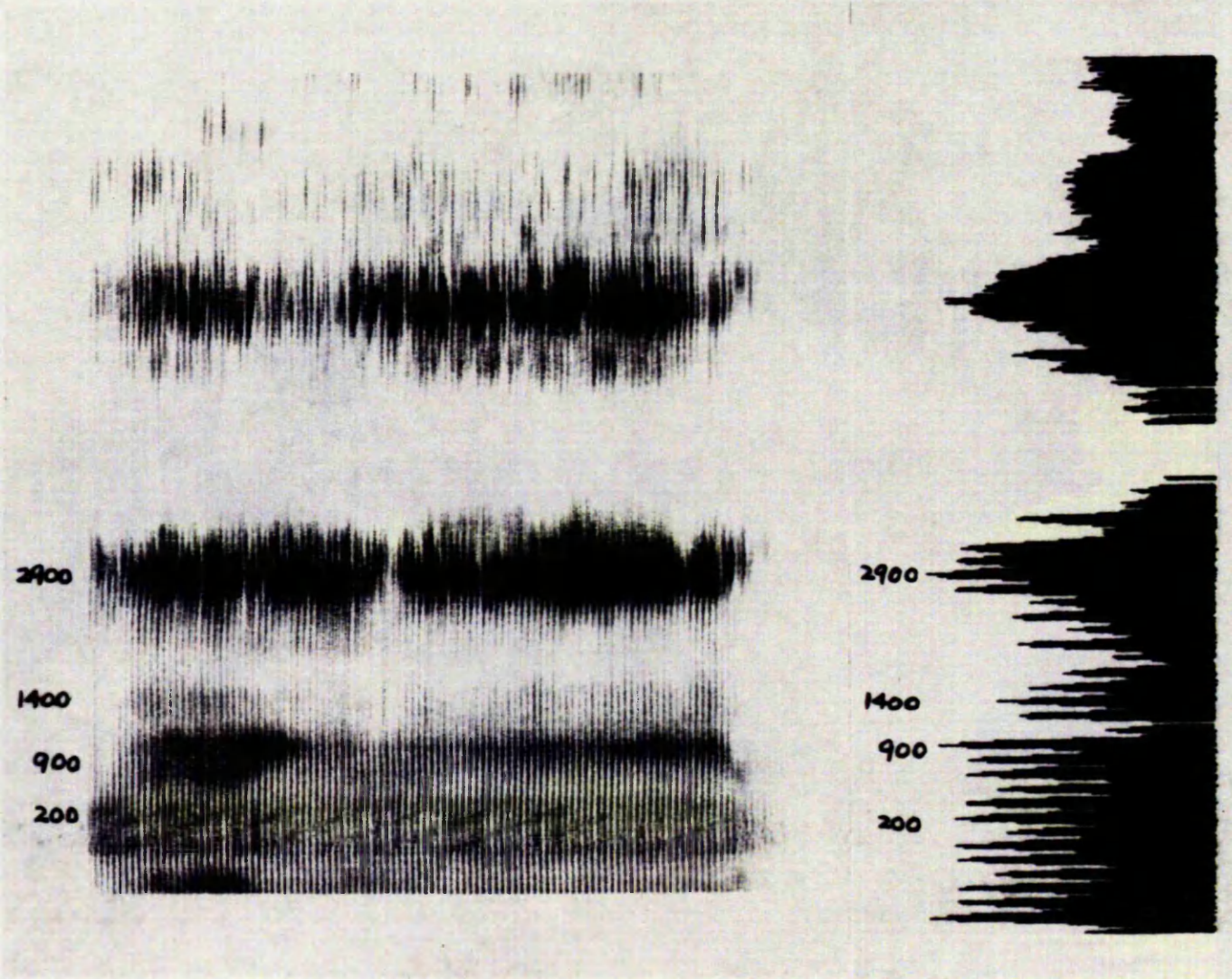
6. hã:



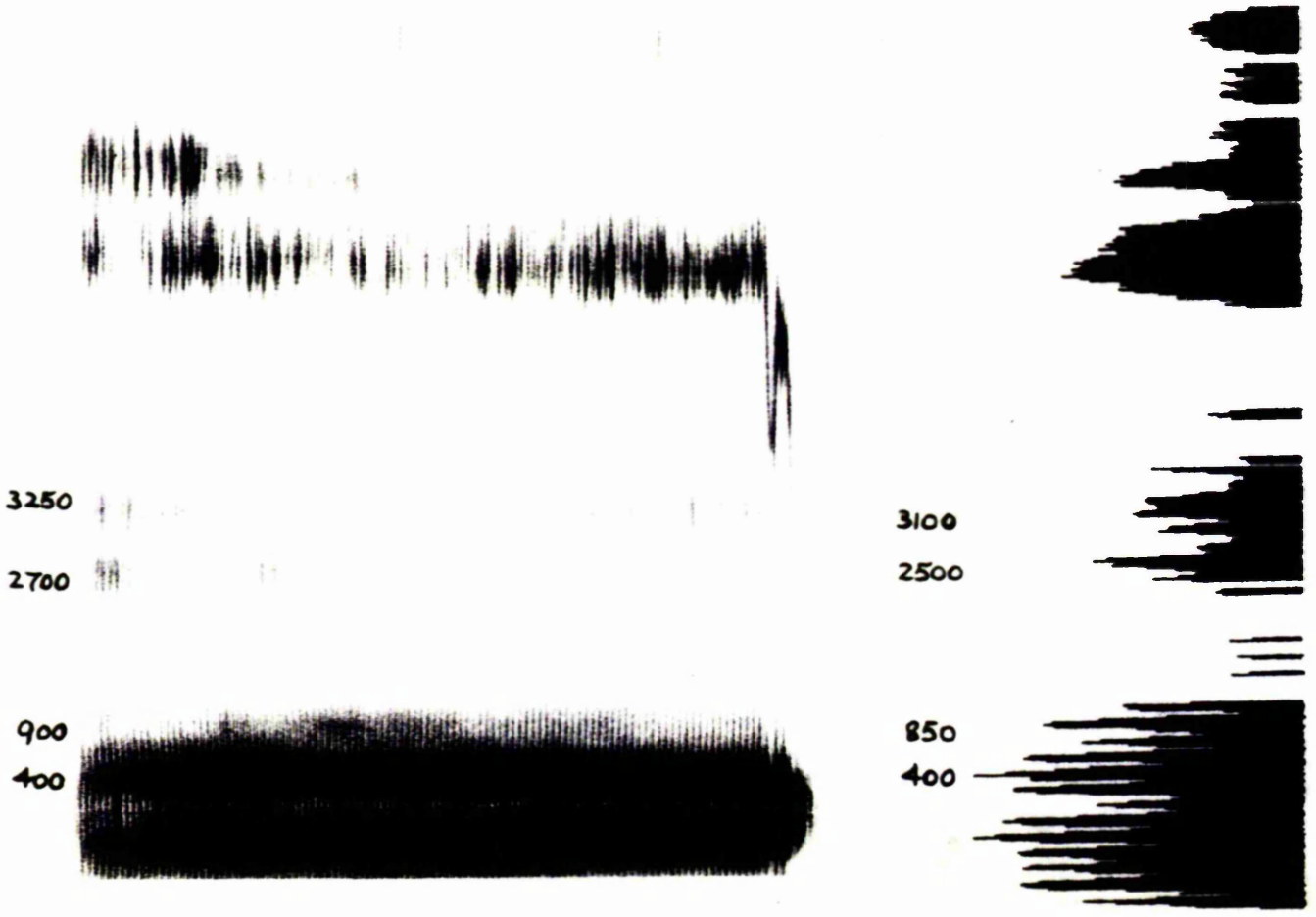
7. ha:



8. hɔ:



9. h5:



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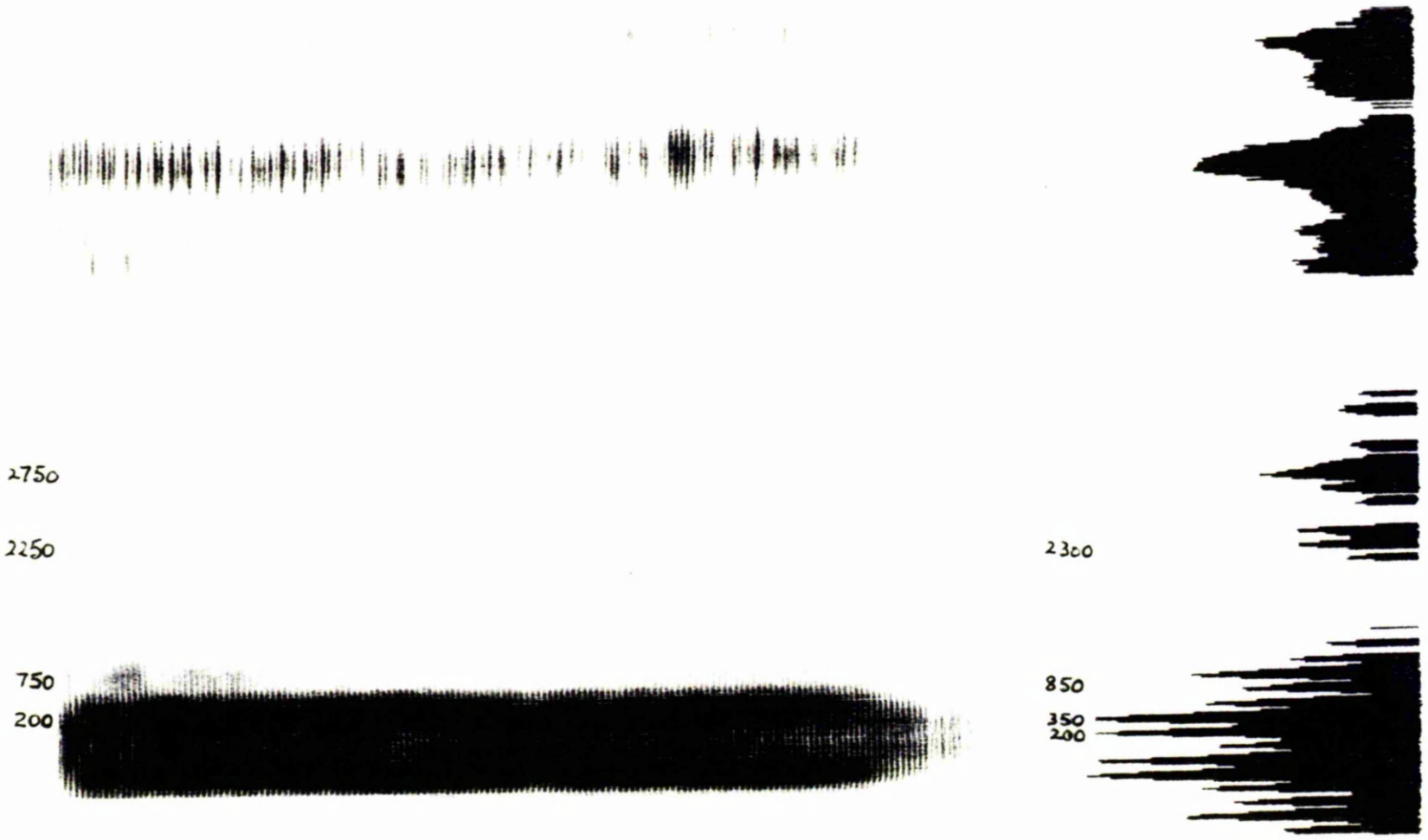

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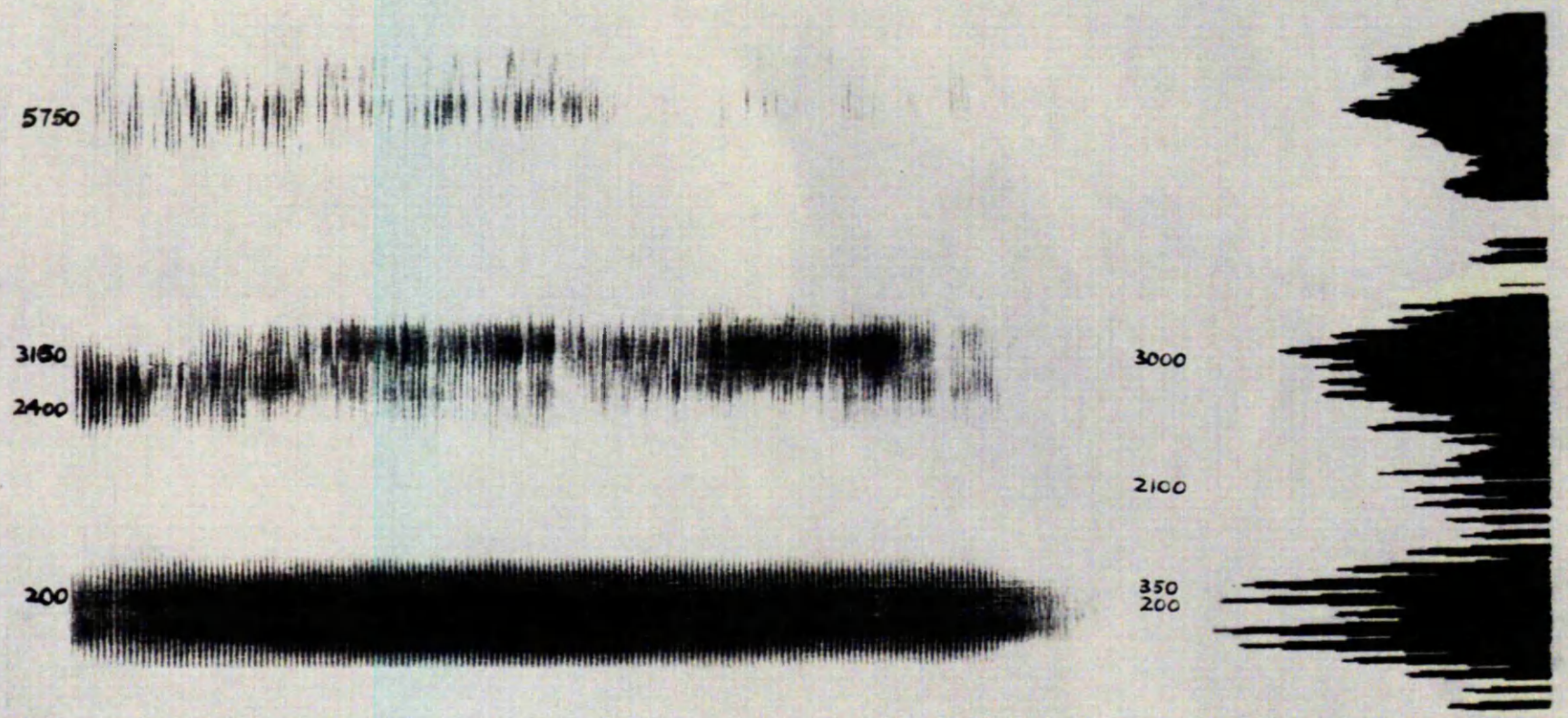

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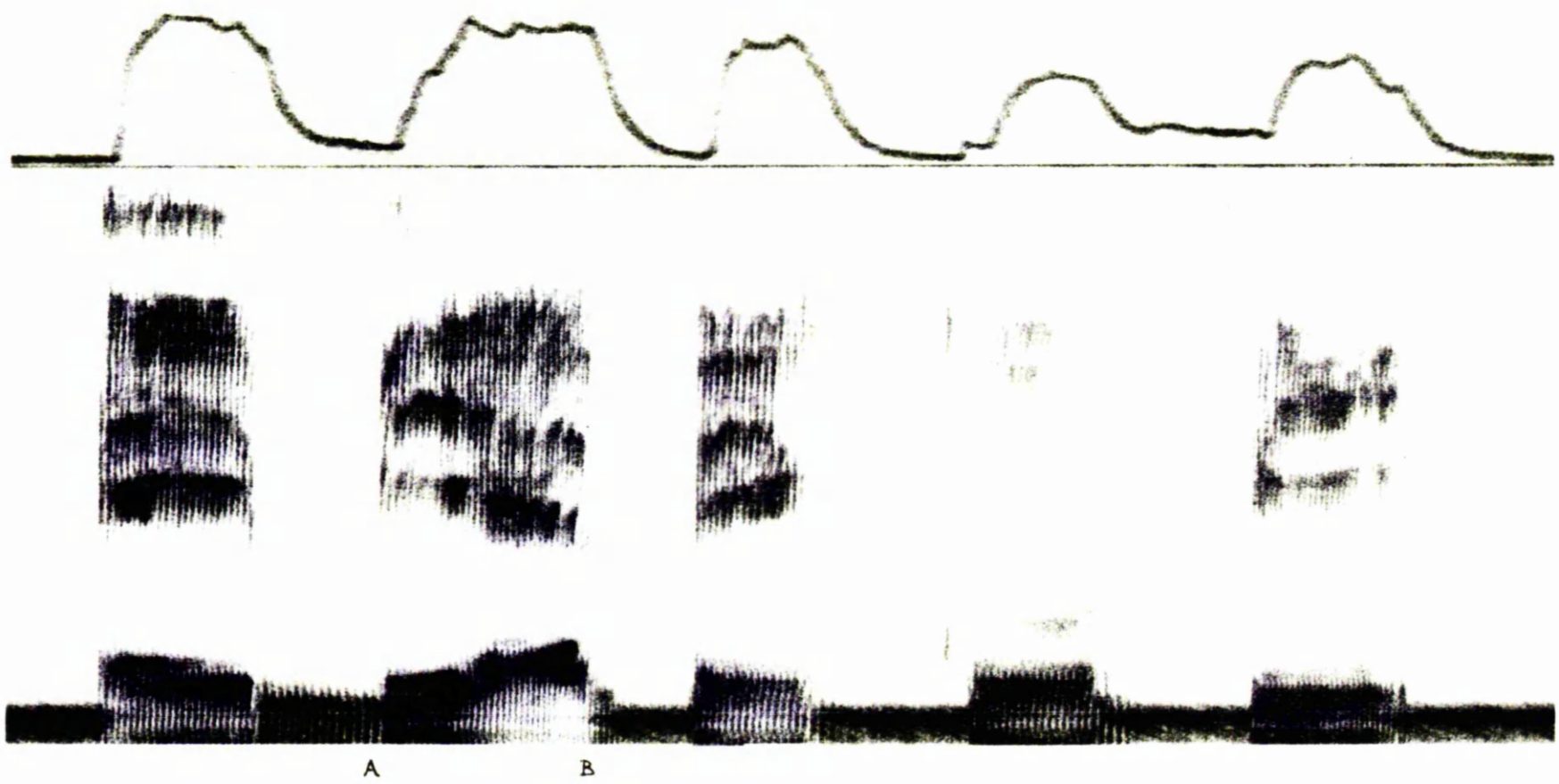
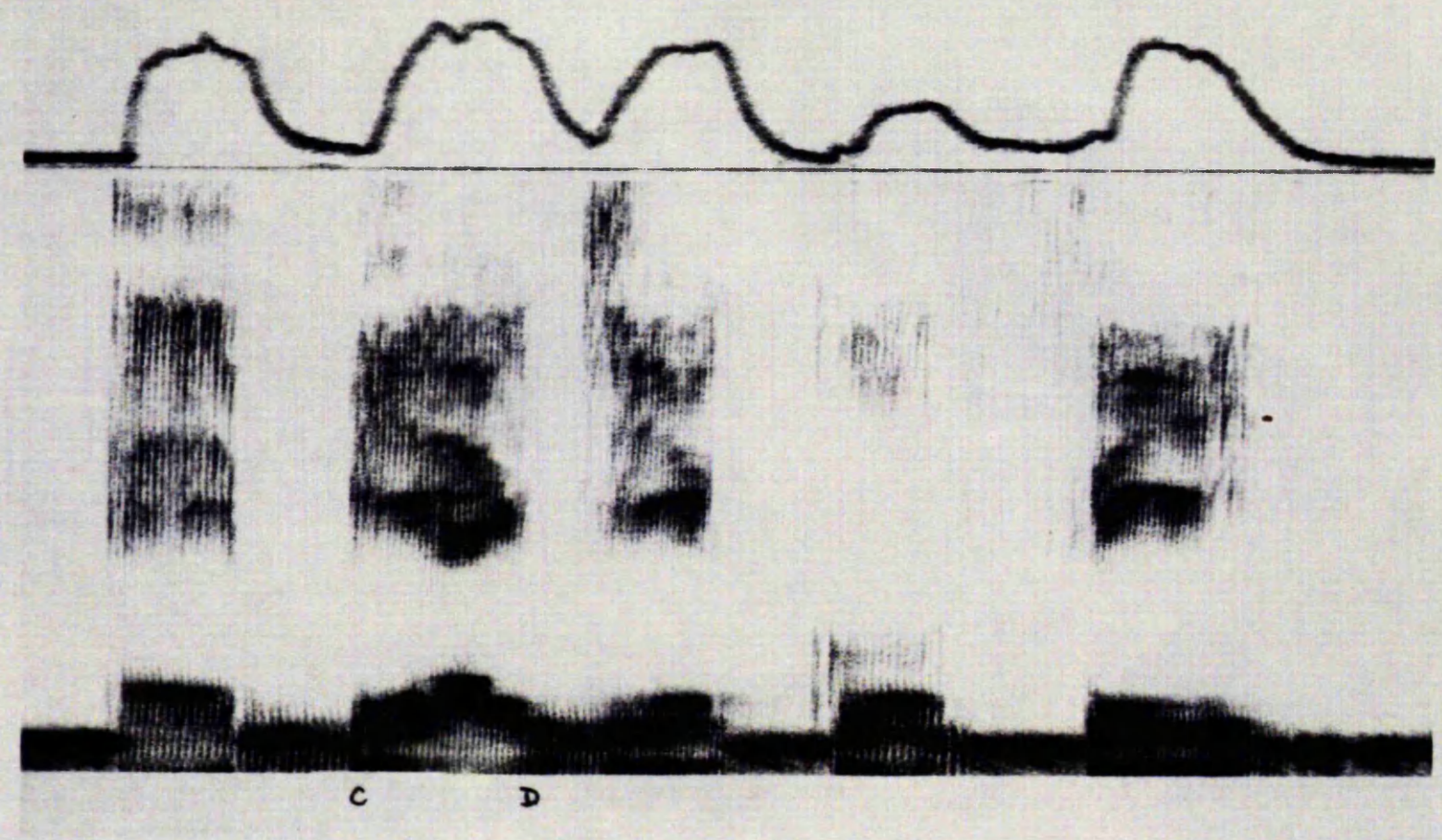
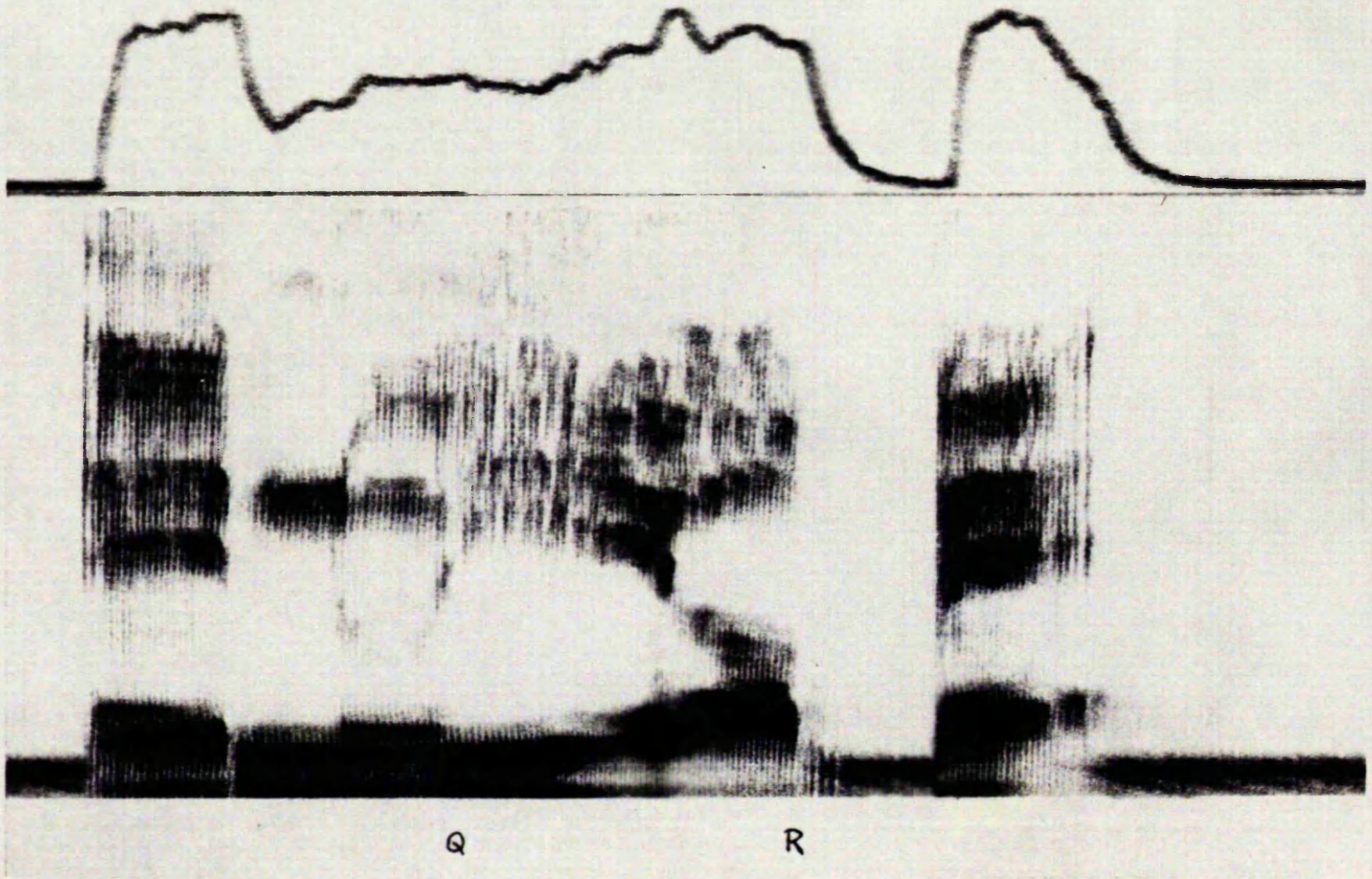


13. è bìɛ́ pè kòfí



14. è bíɛ́ dʒí kòfí



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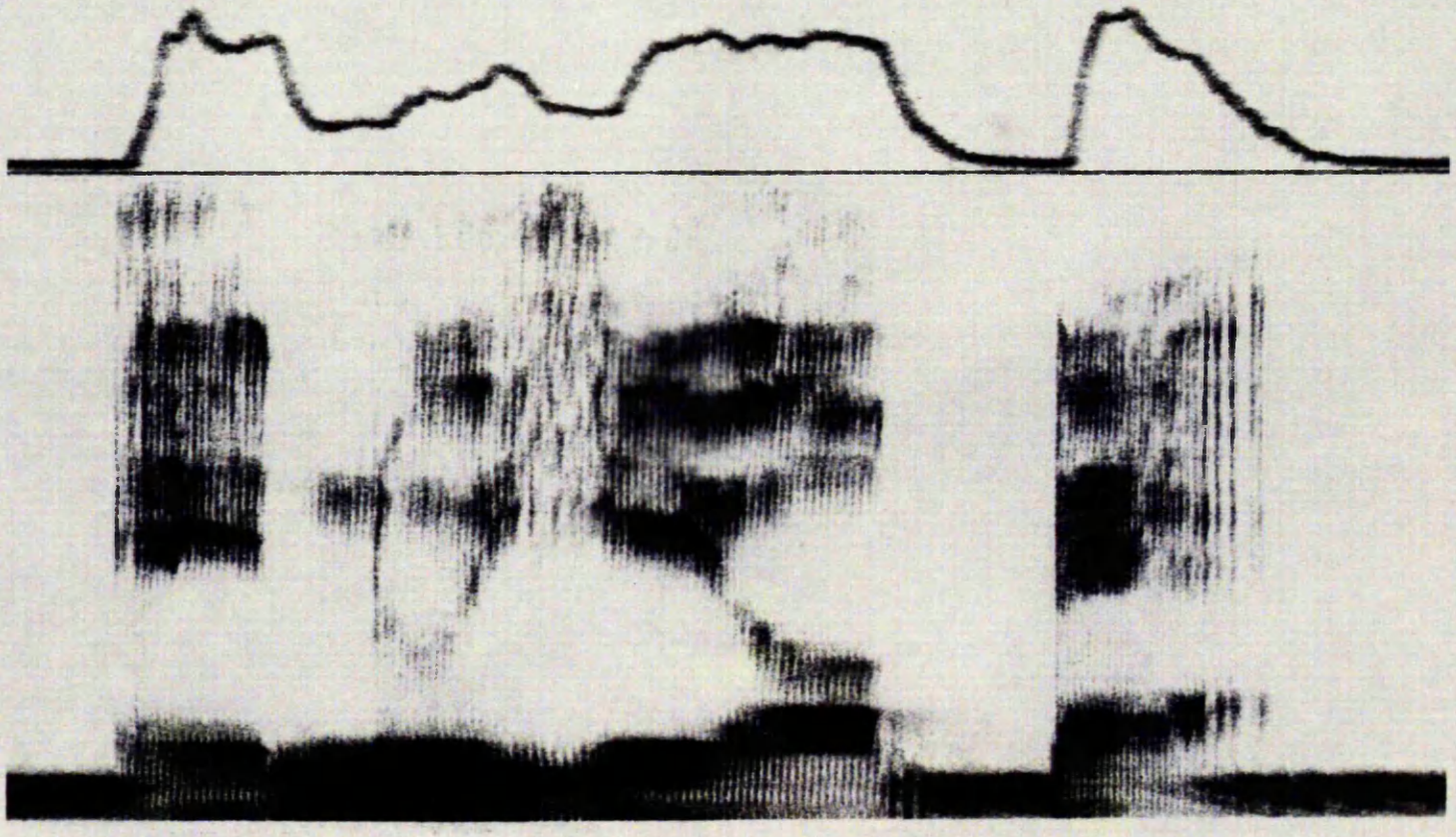
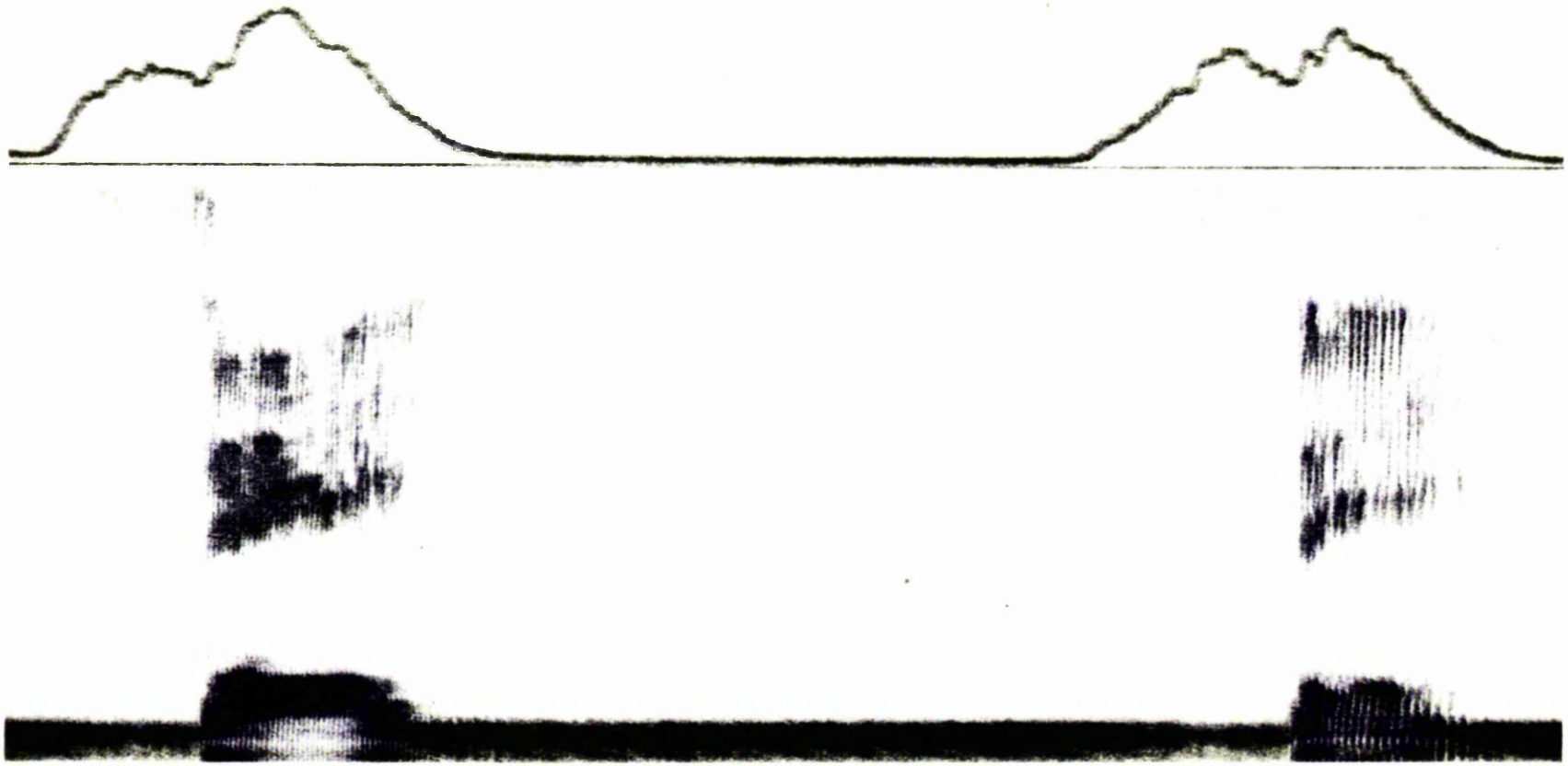
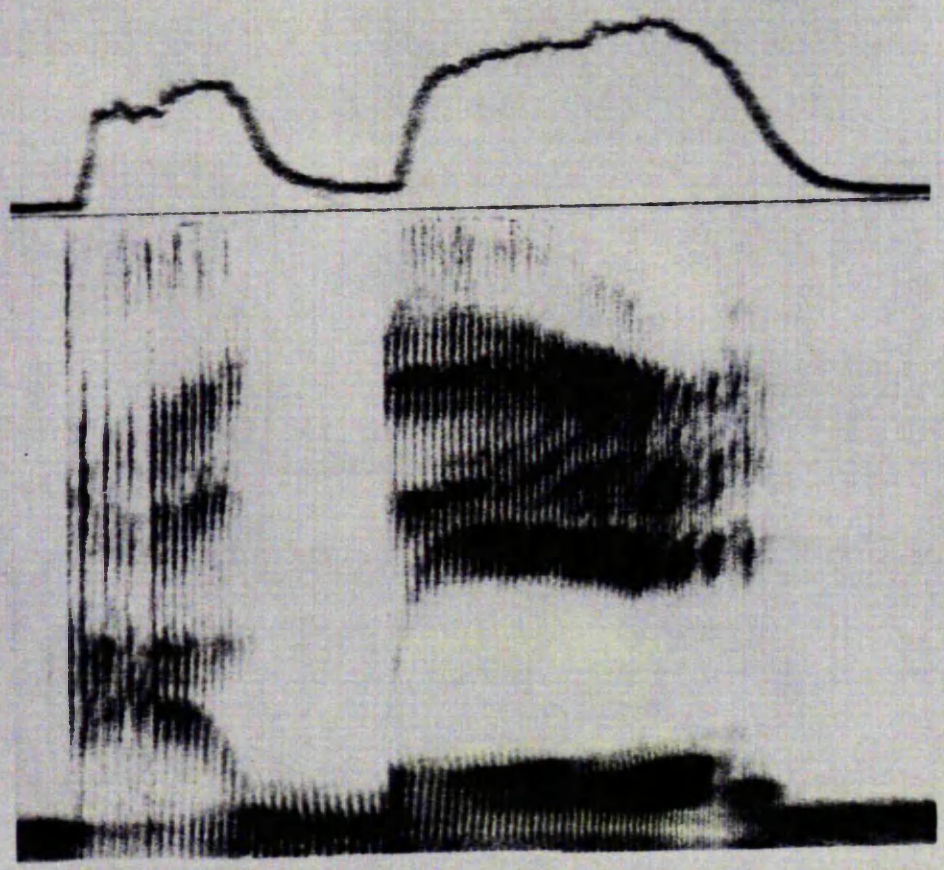


16. è nǔ hìɔ́ pɛ́?



17. sé

18. sè



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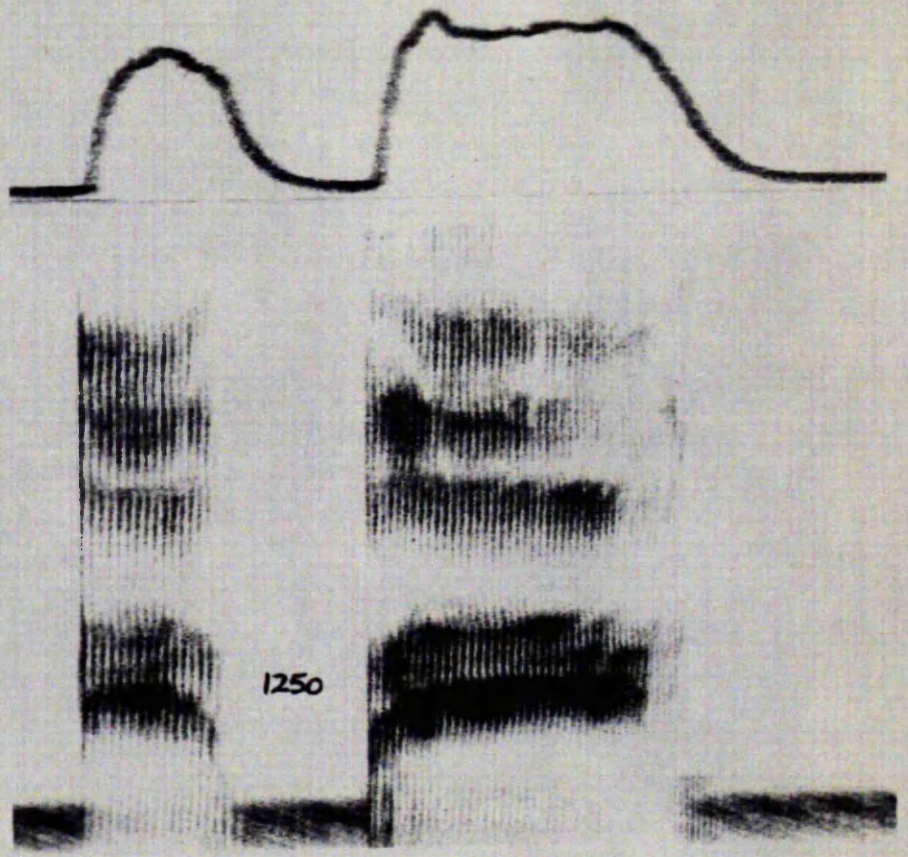

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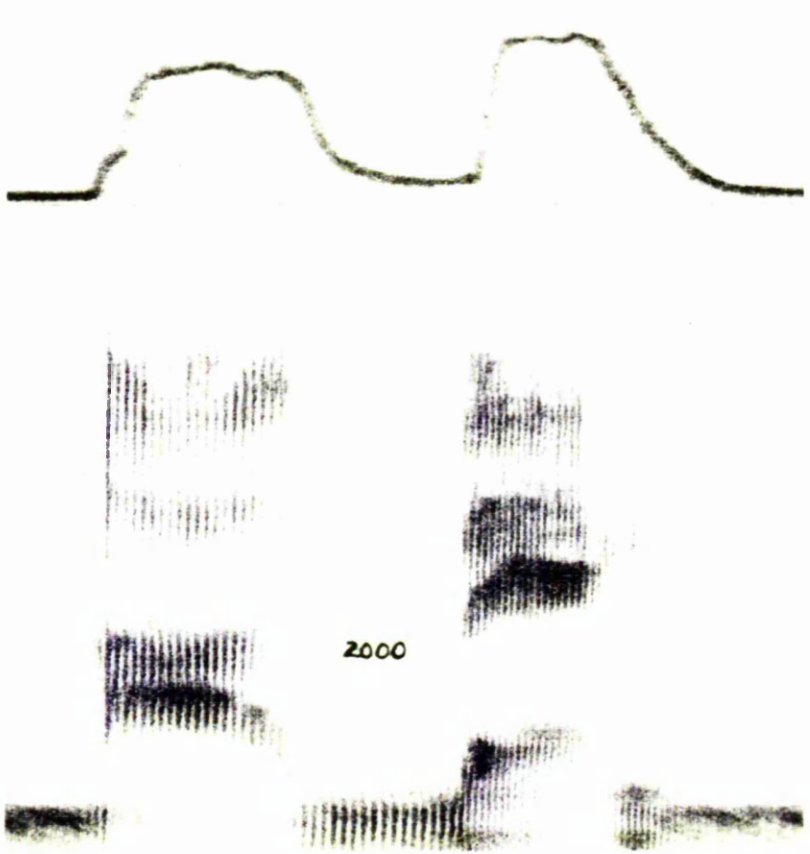

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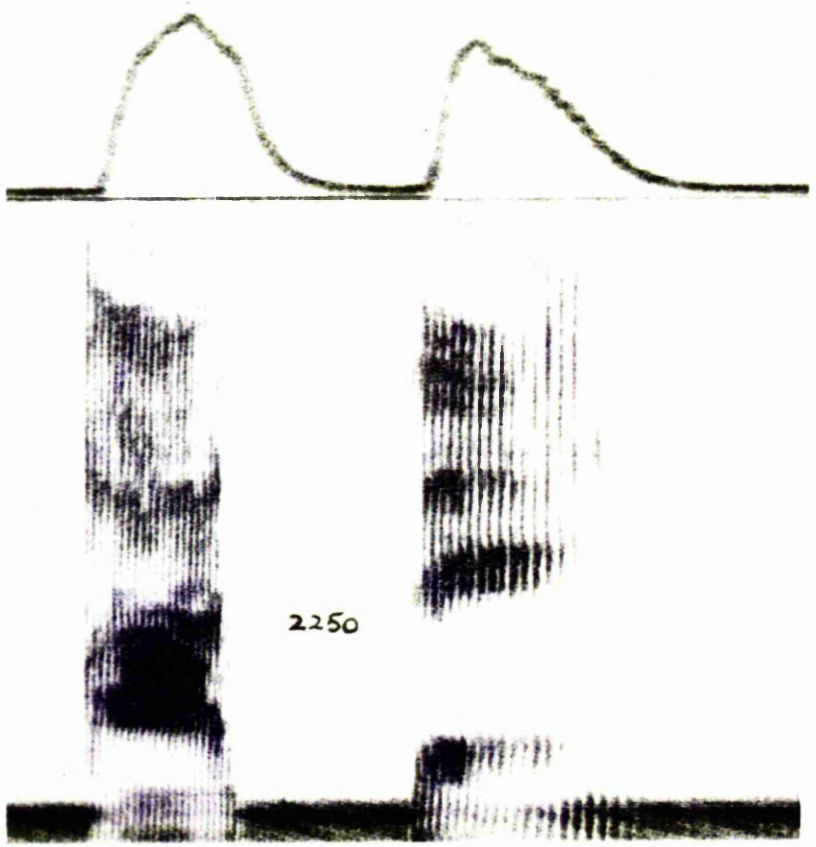

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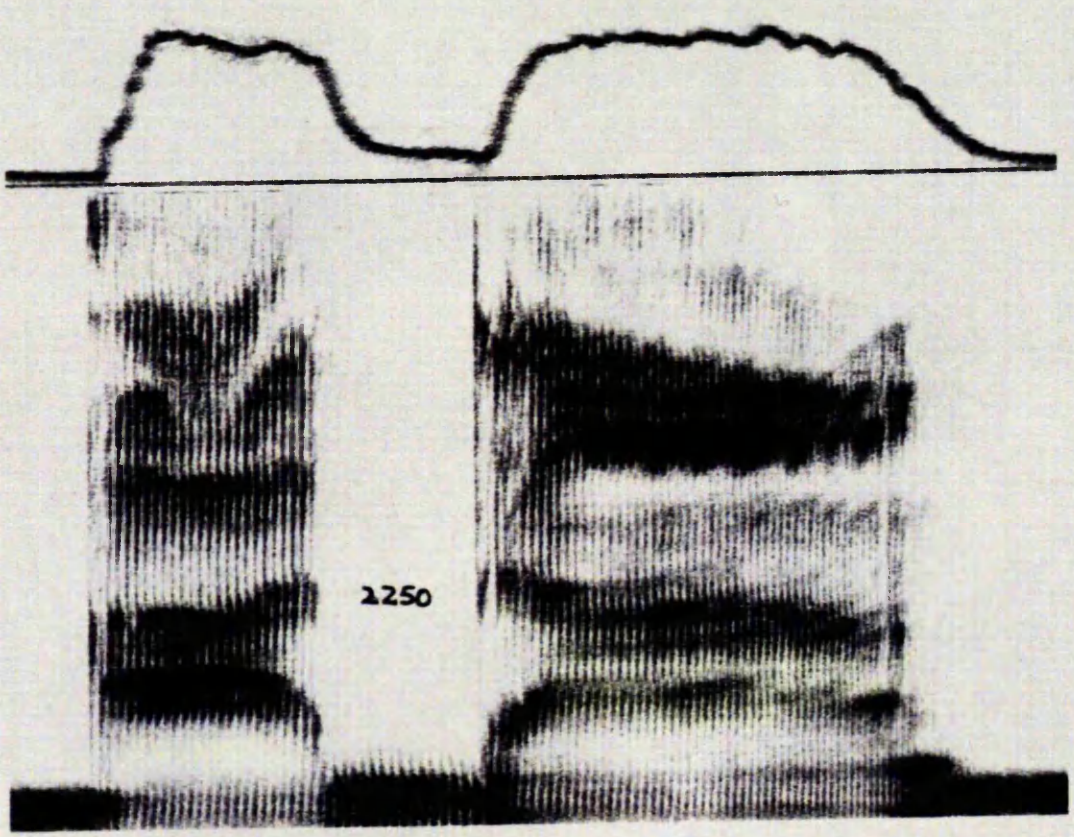

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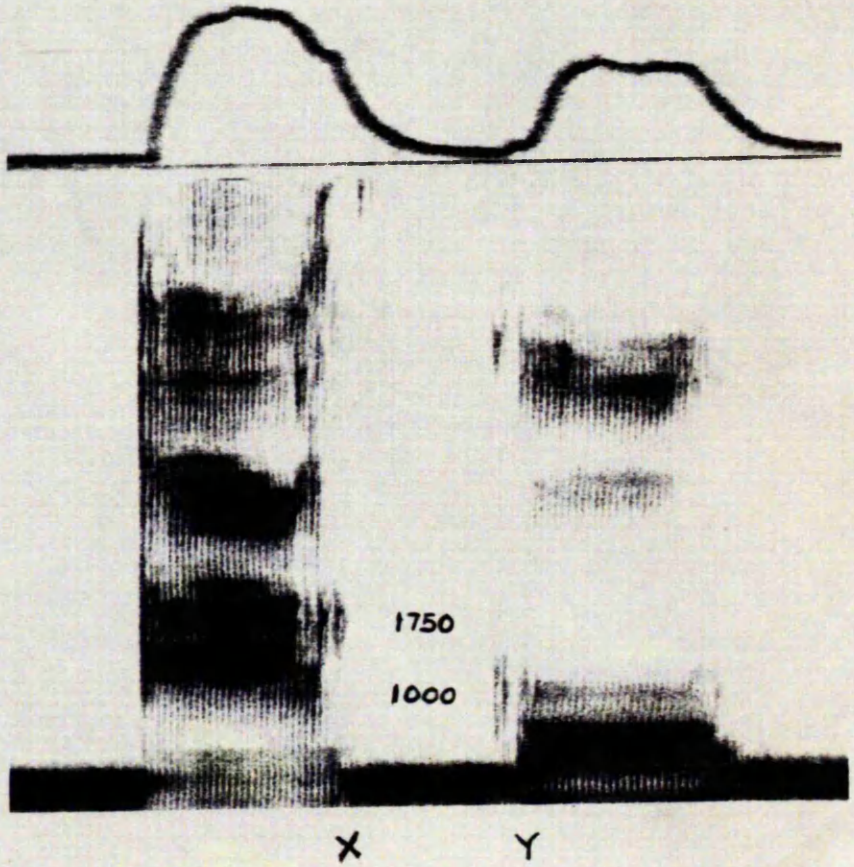

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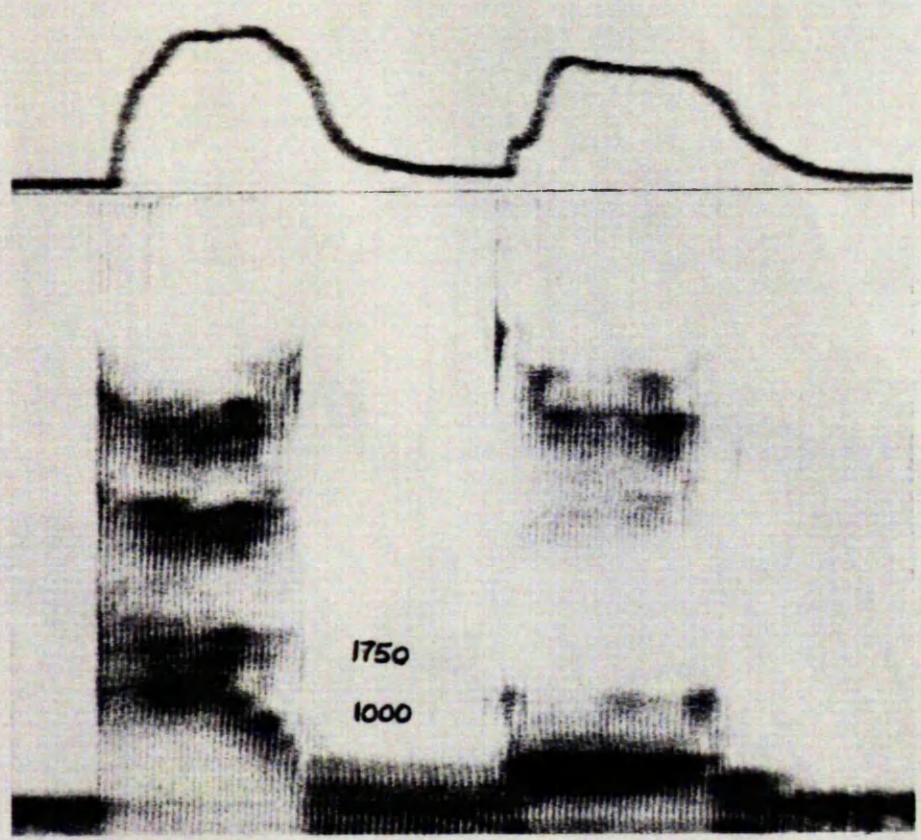

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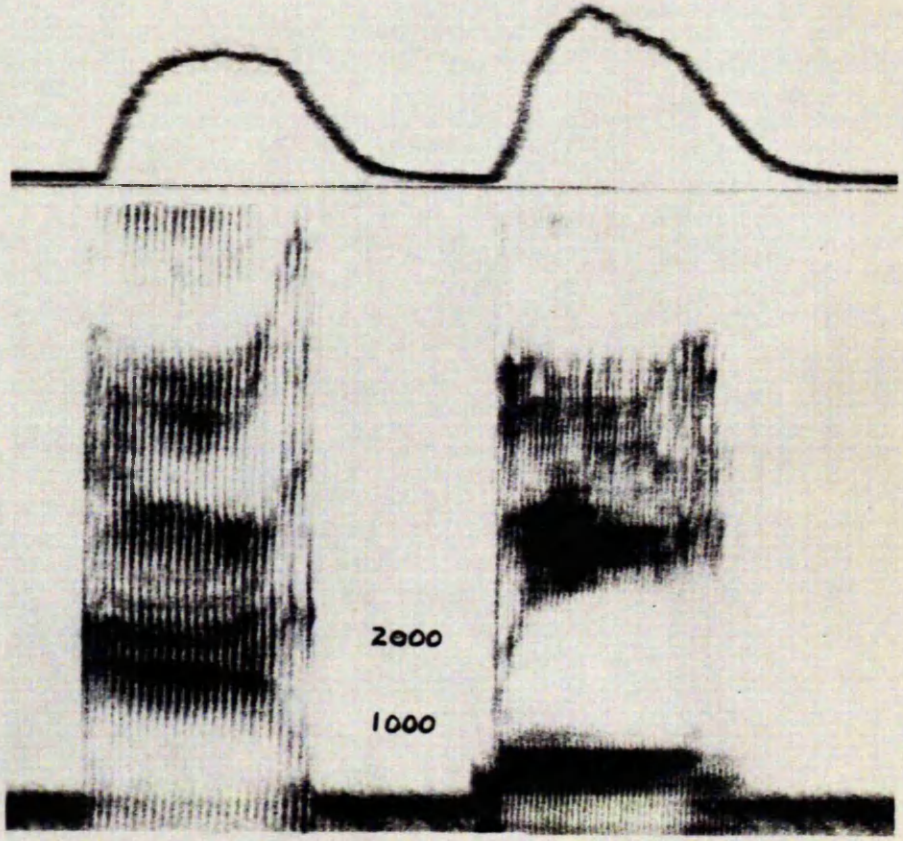

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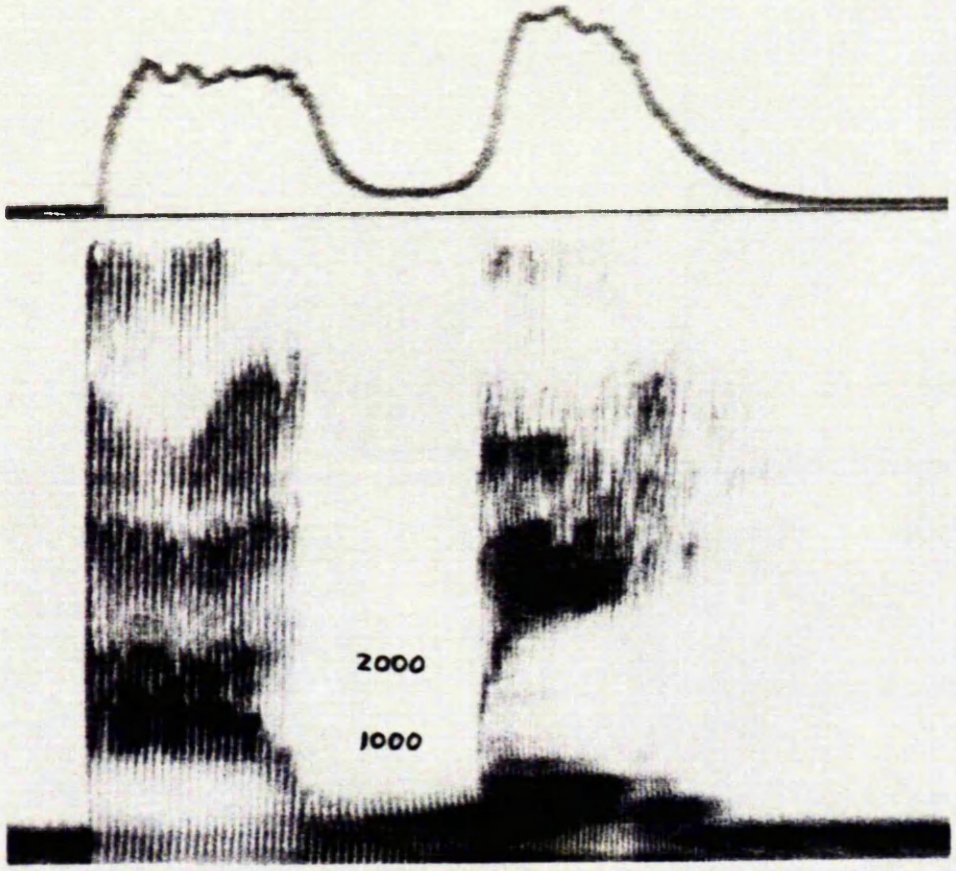
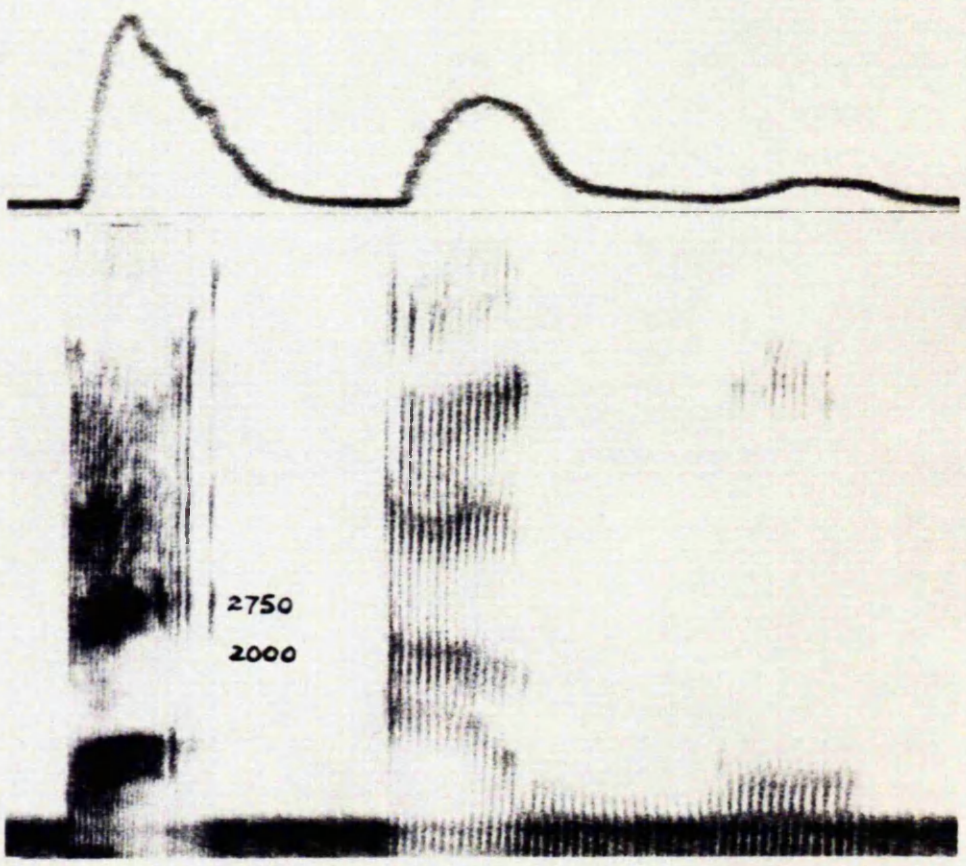
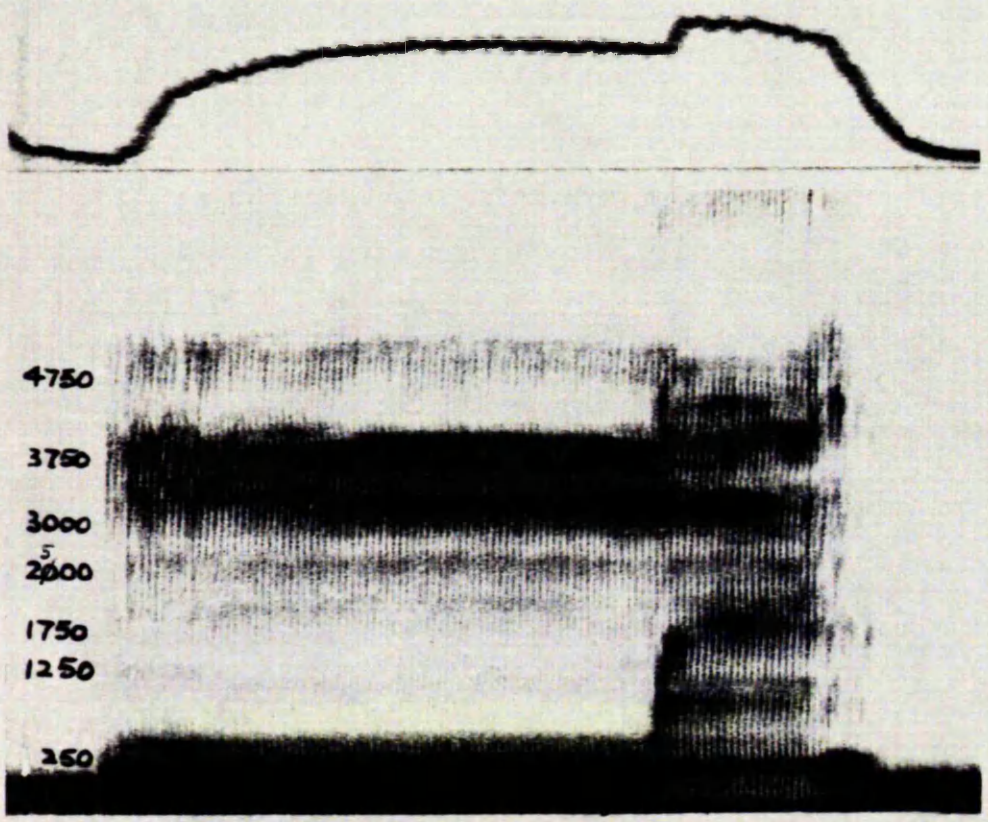


27. à gbé



28. té? àgbò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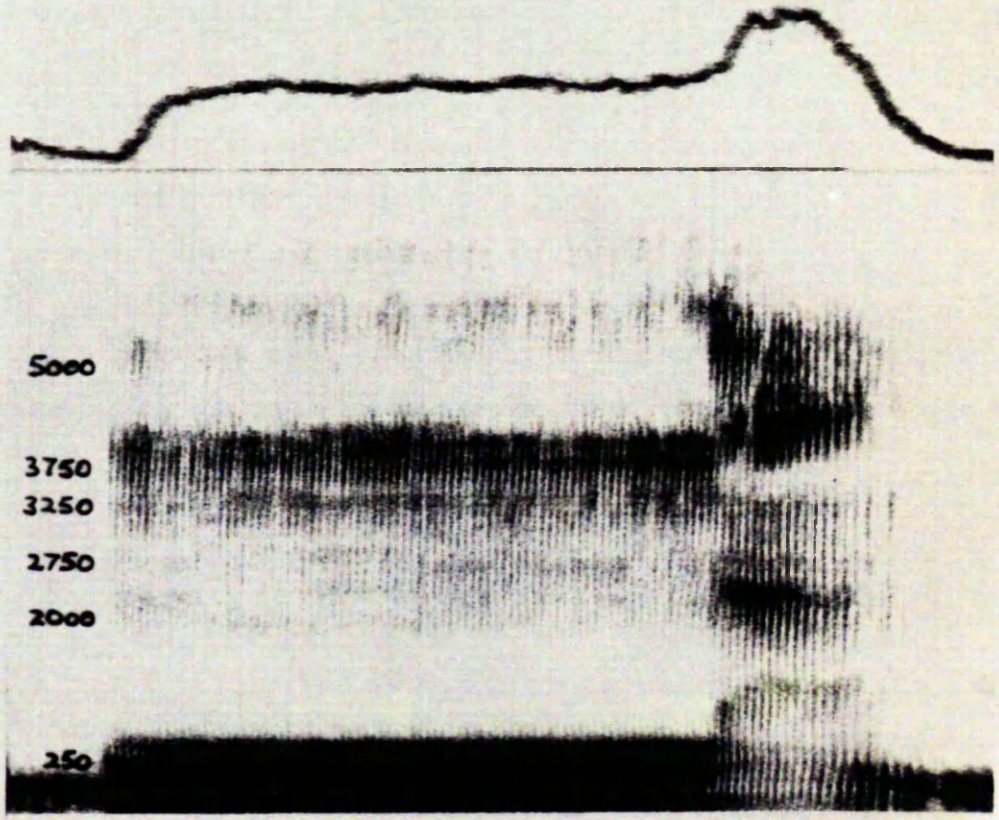
29. m:ã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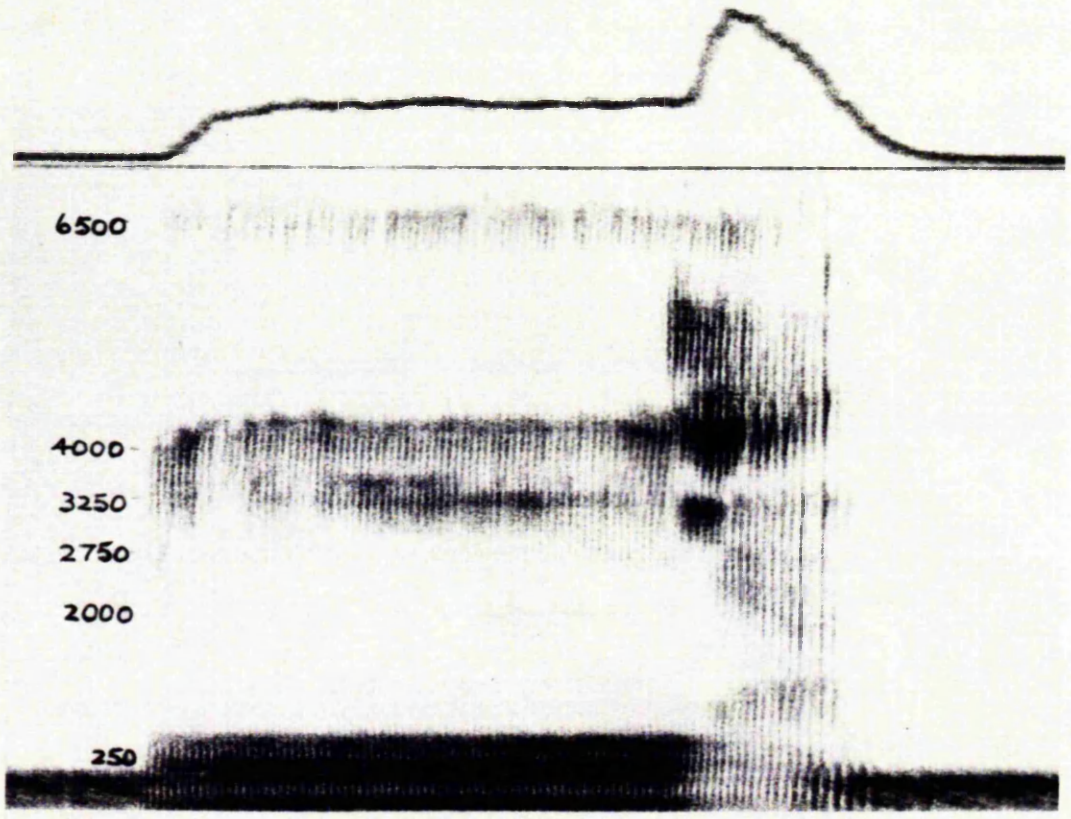
30. n:à



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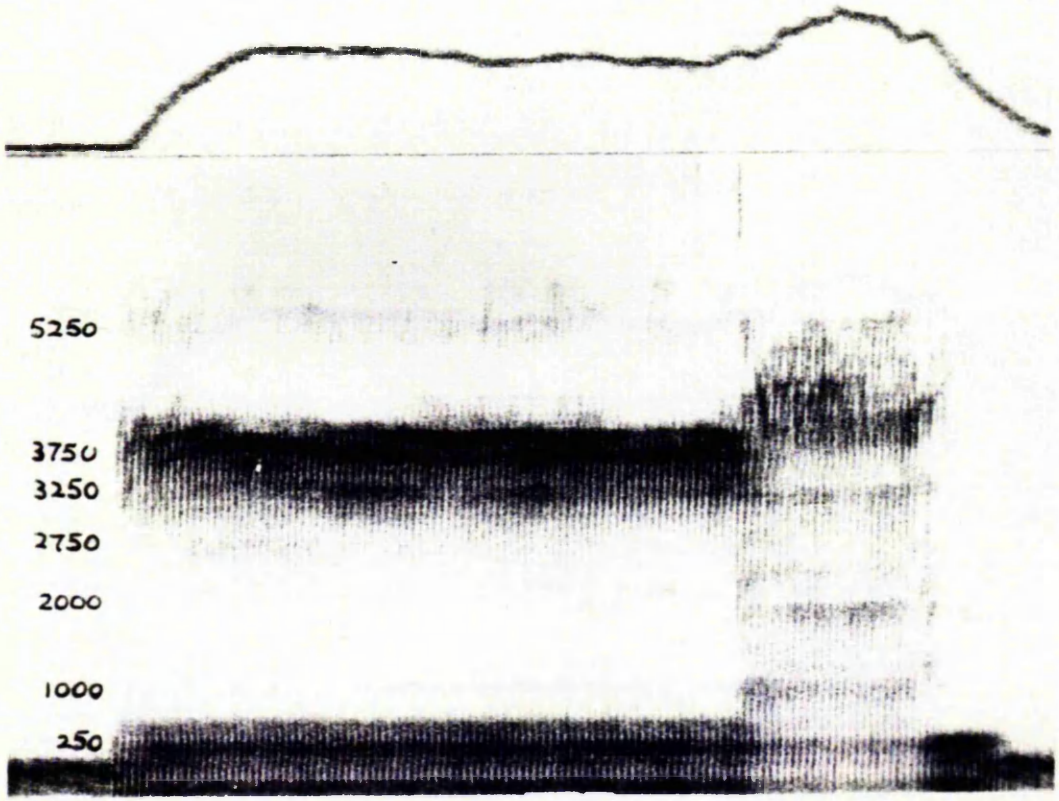
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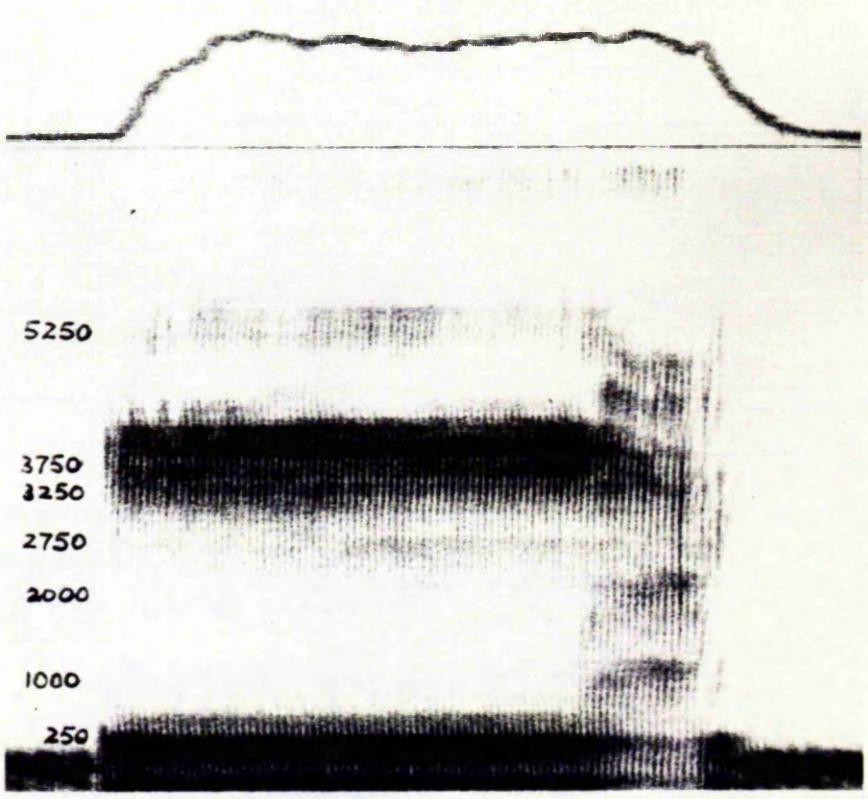
32. ŋ:ã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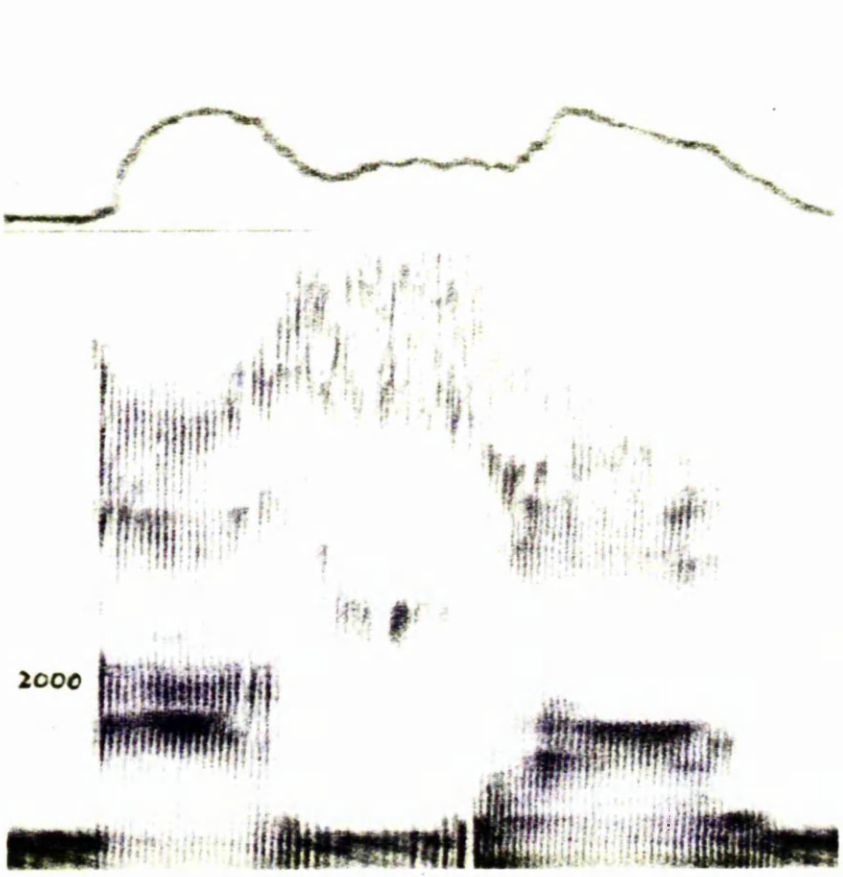
33. ŋm:ã



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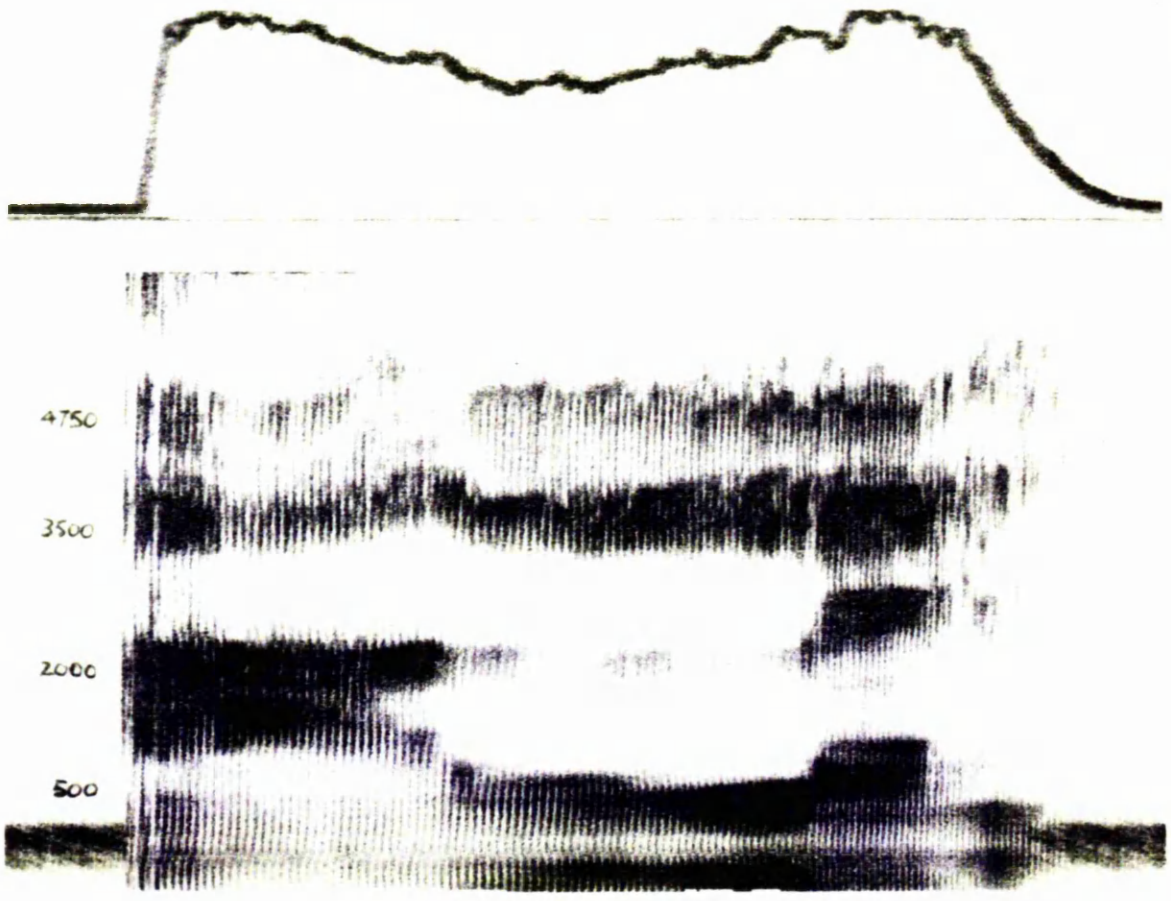
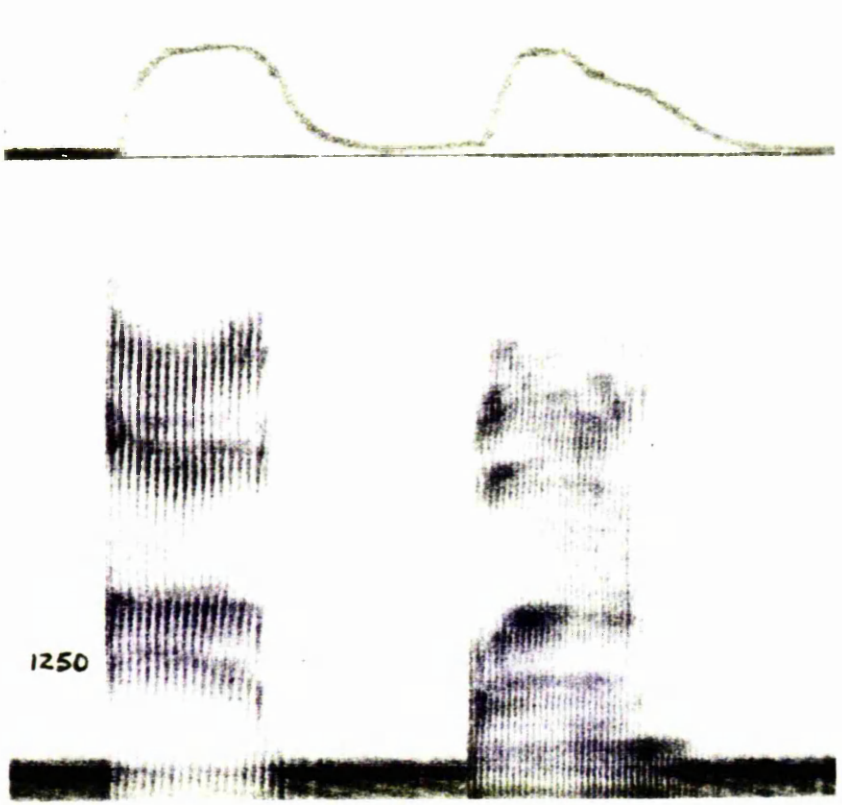


35. à 1é



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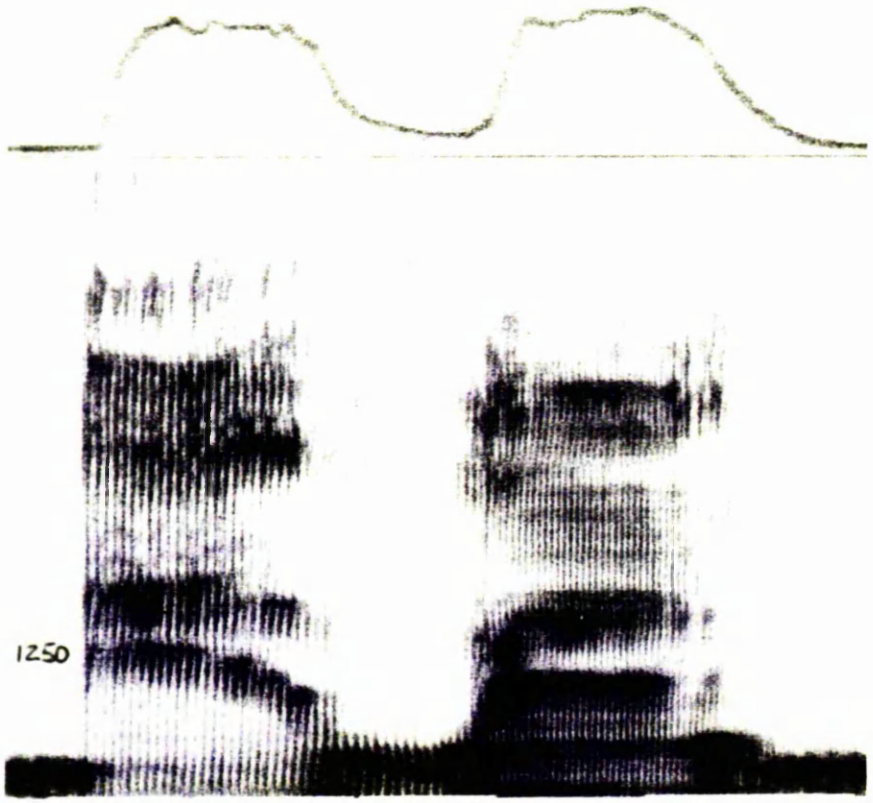

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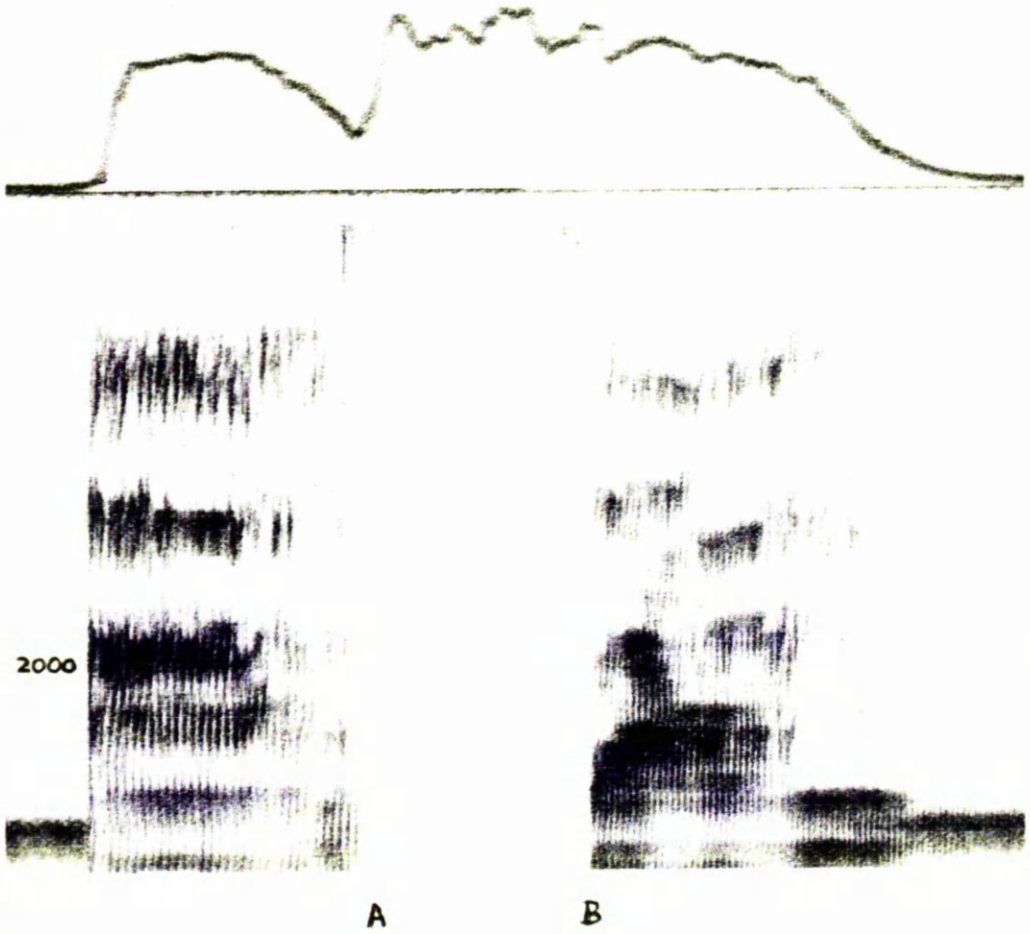

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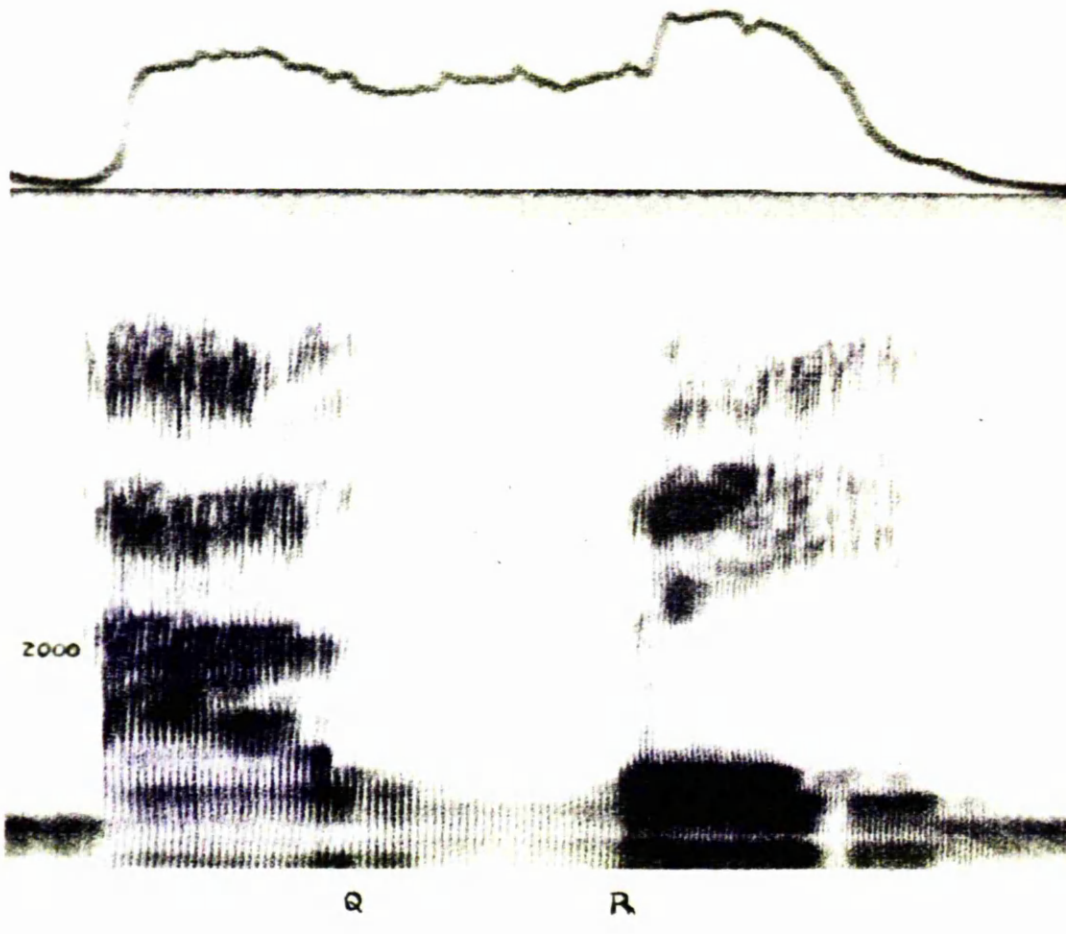

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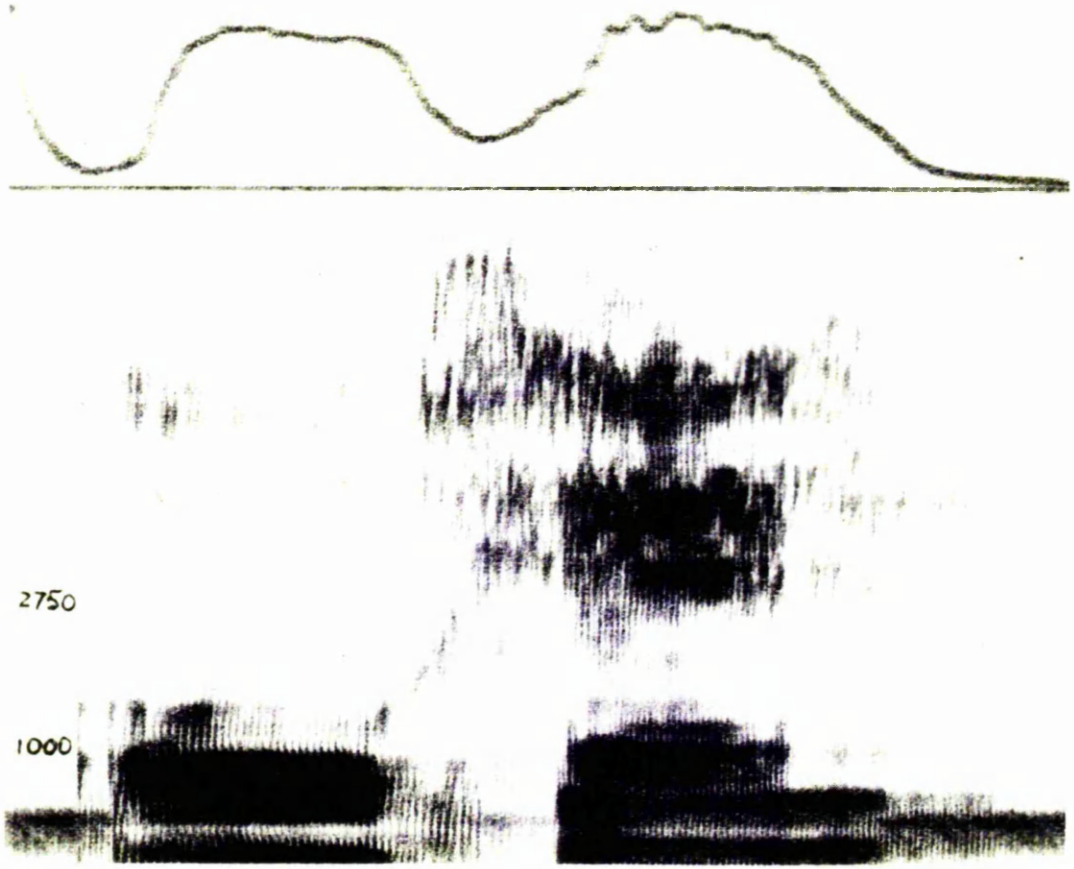

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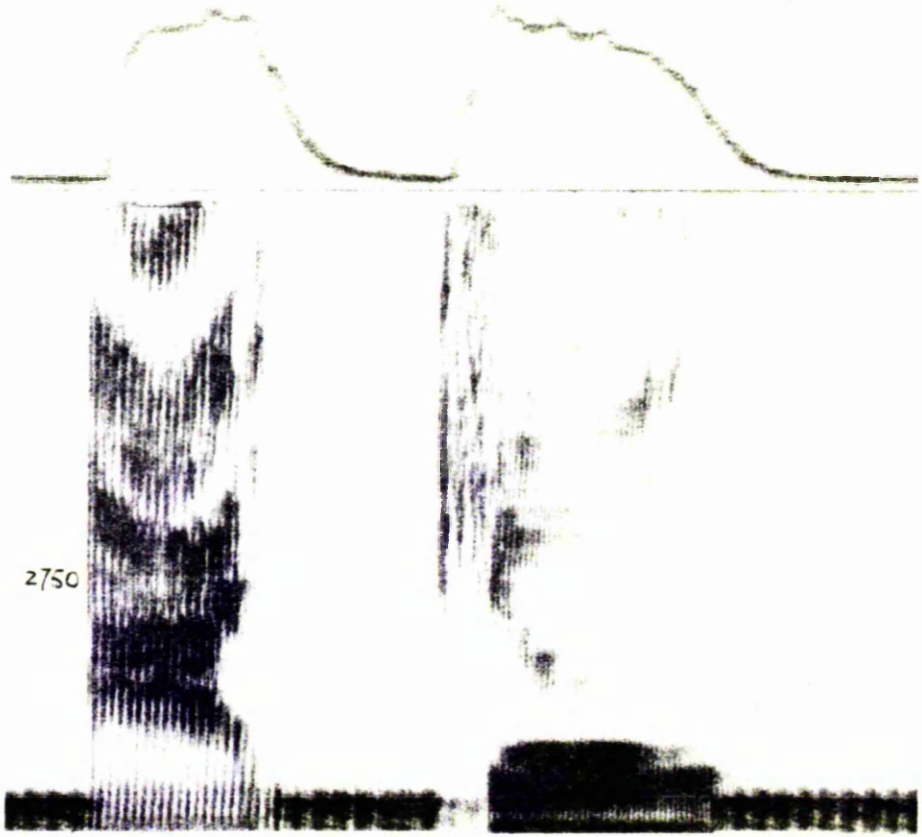
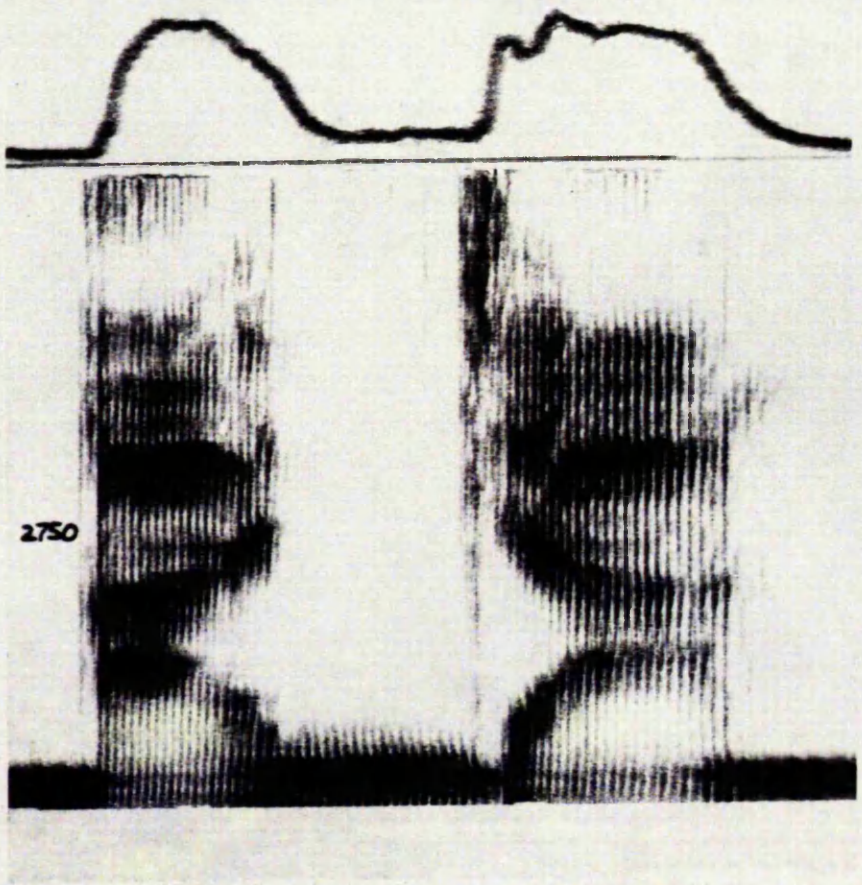
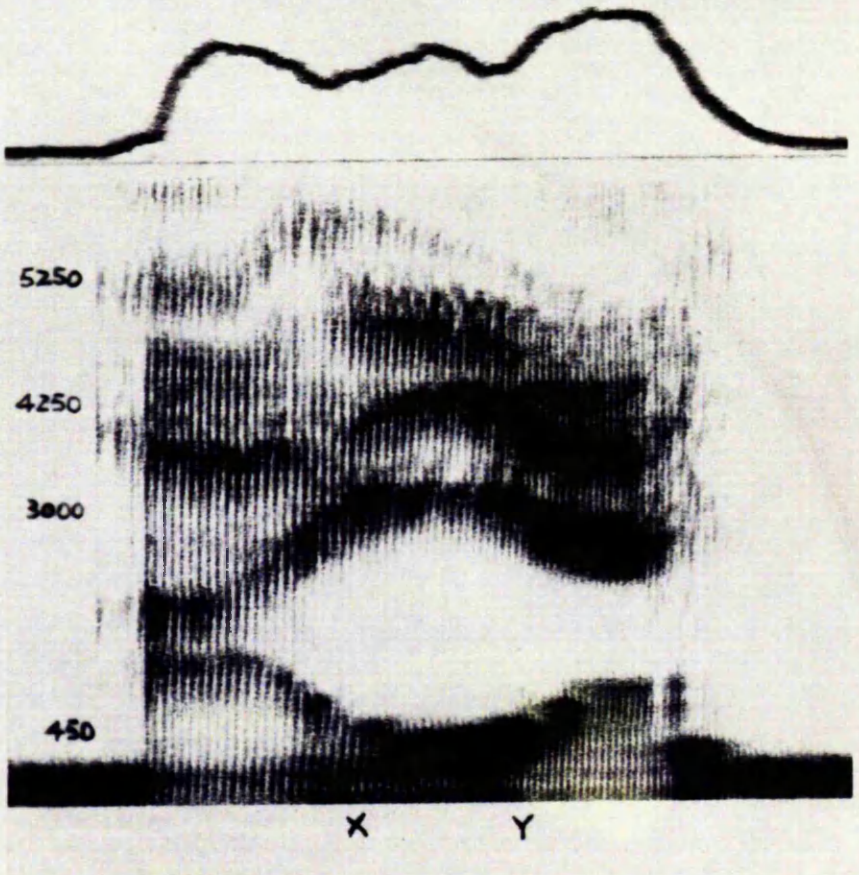


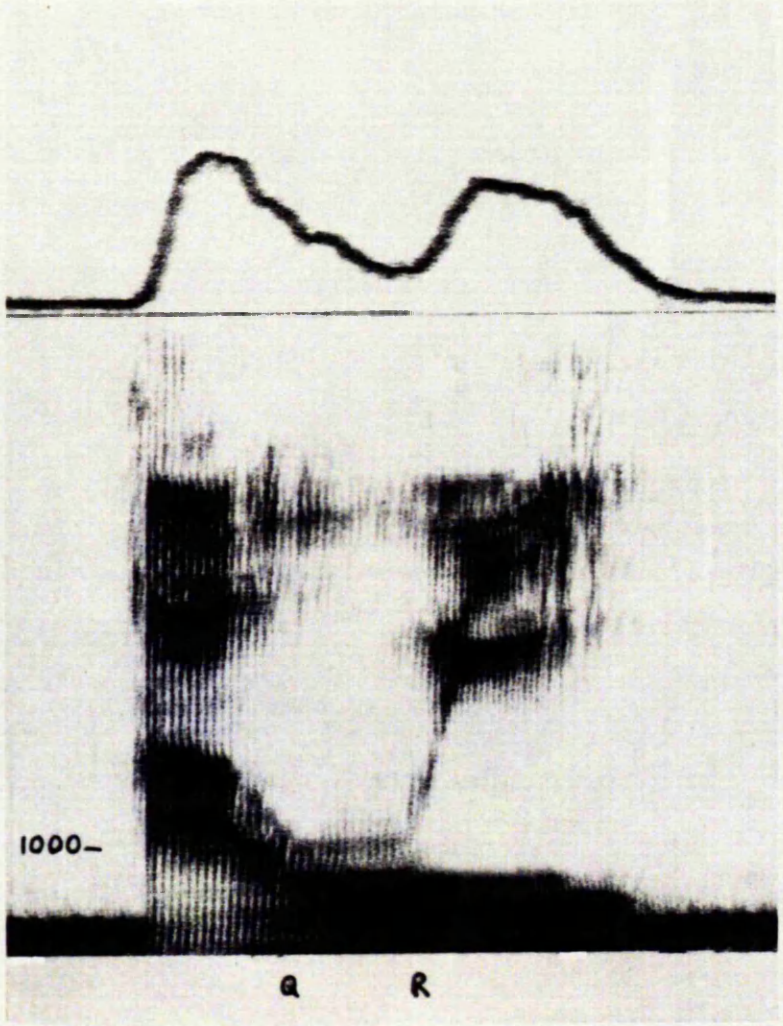
41. àtʃú



42. àdʒà

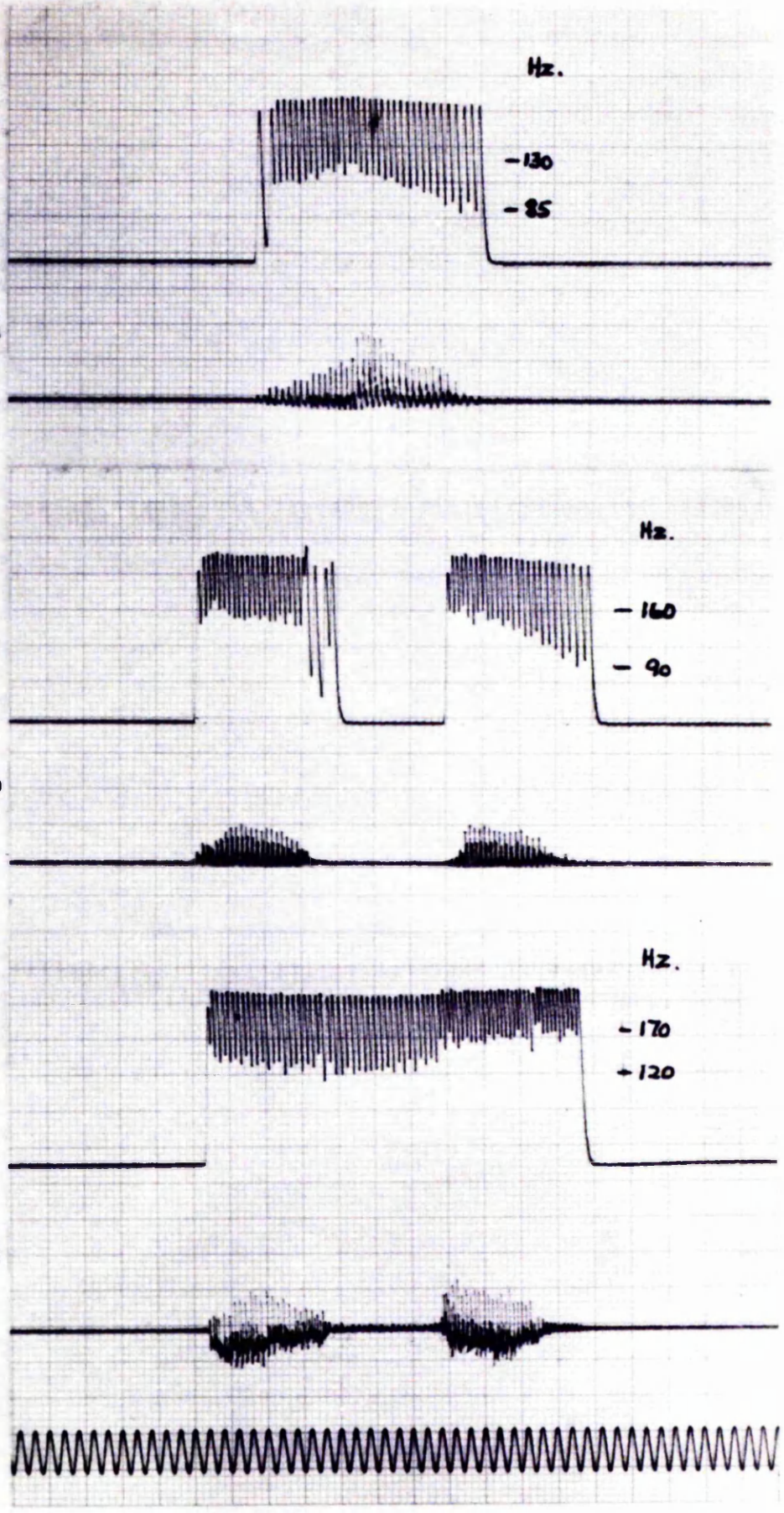


43. ã jɛ̃



44. àwí

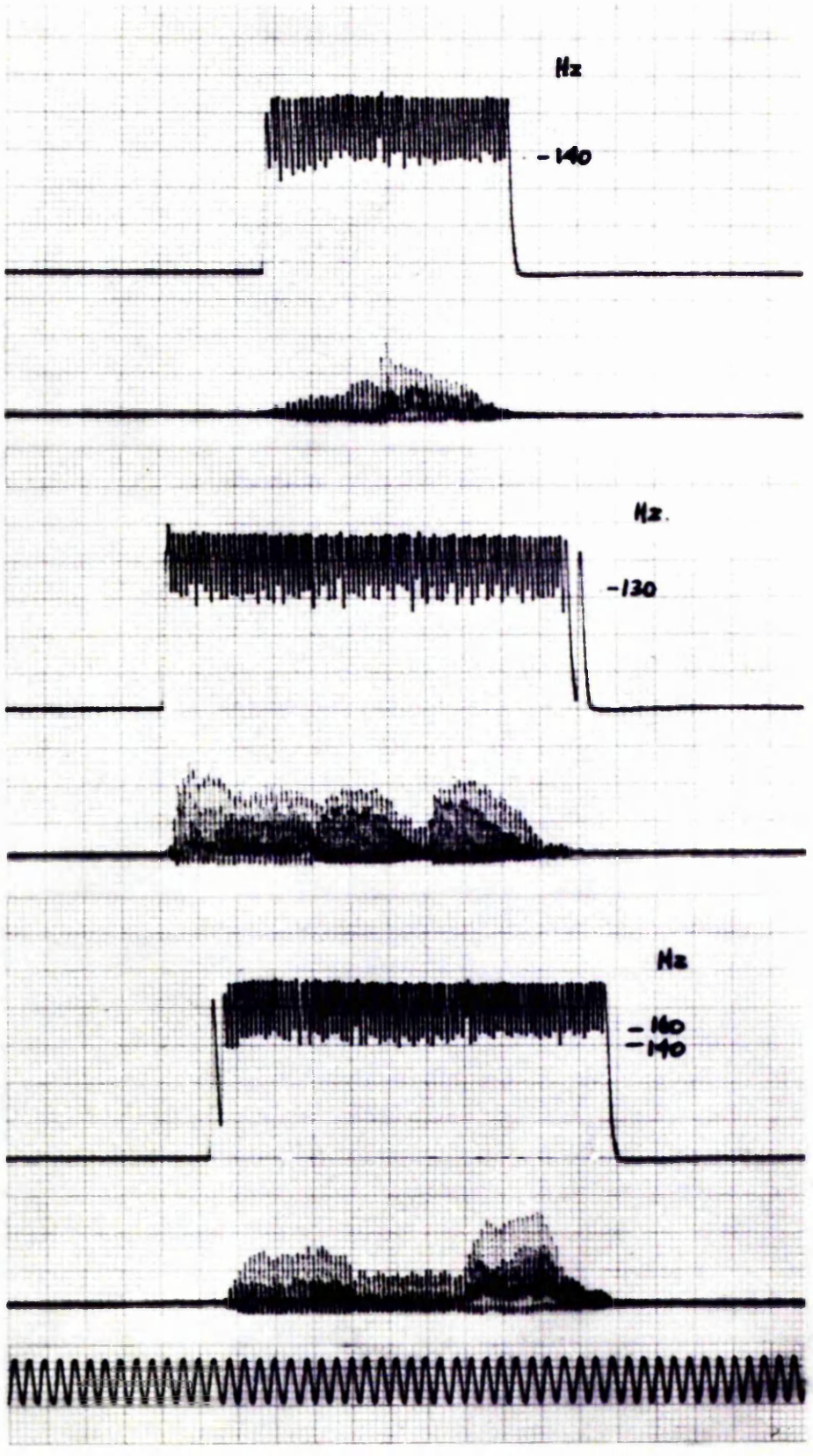
45. Ì sè, í sé?



1. mǎ

2. ɔ̀kpɔ̀

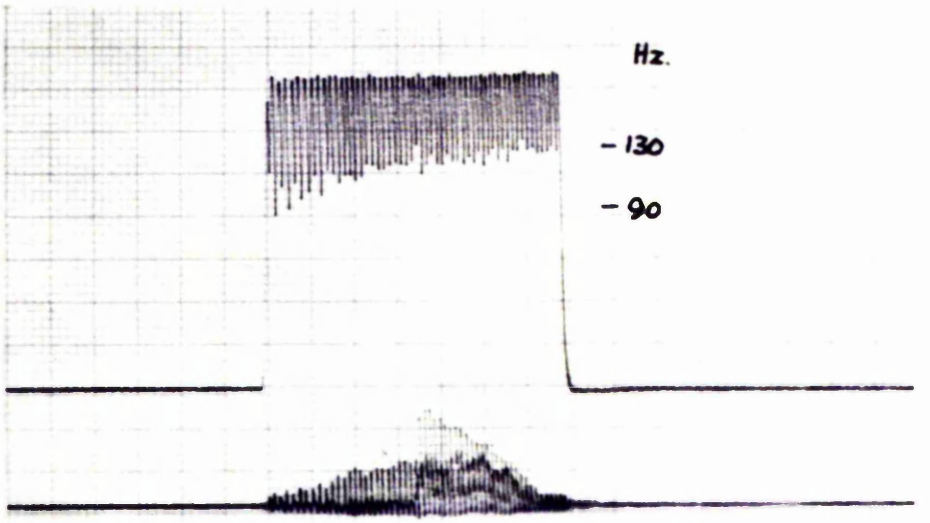
3. tàbá



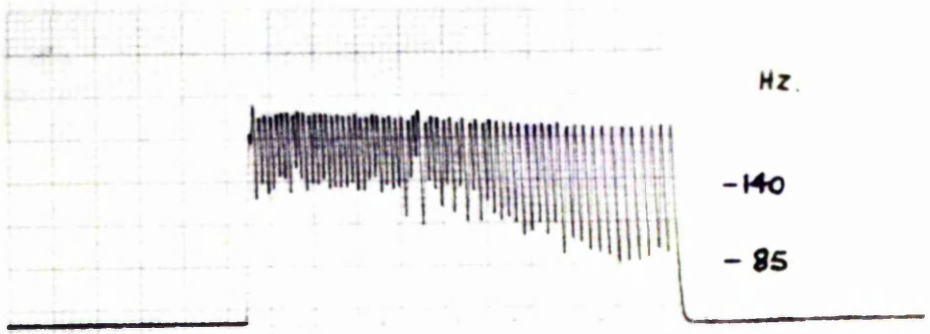
4. mã

5. peli

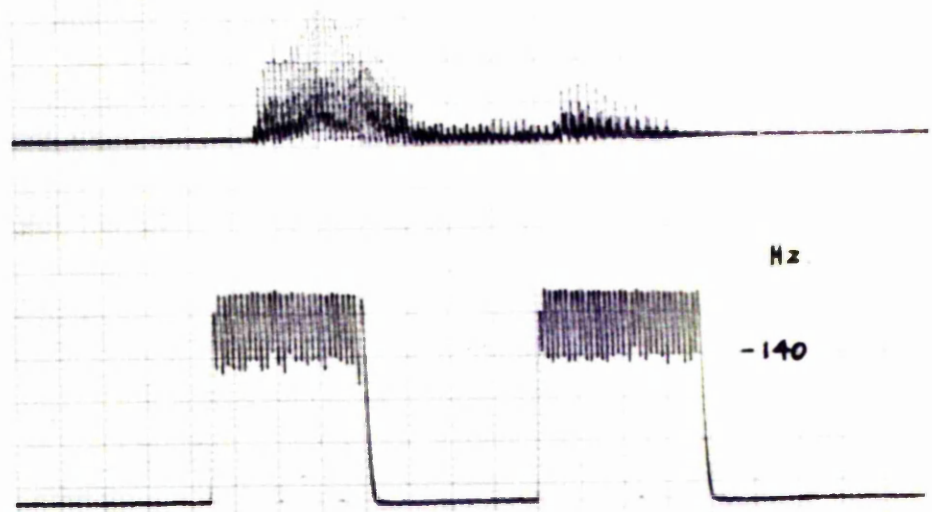
6. sínɔ́



7. má

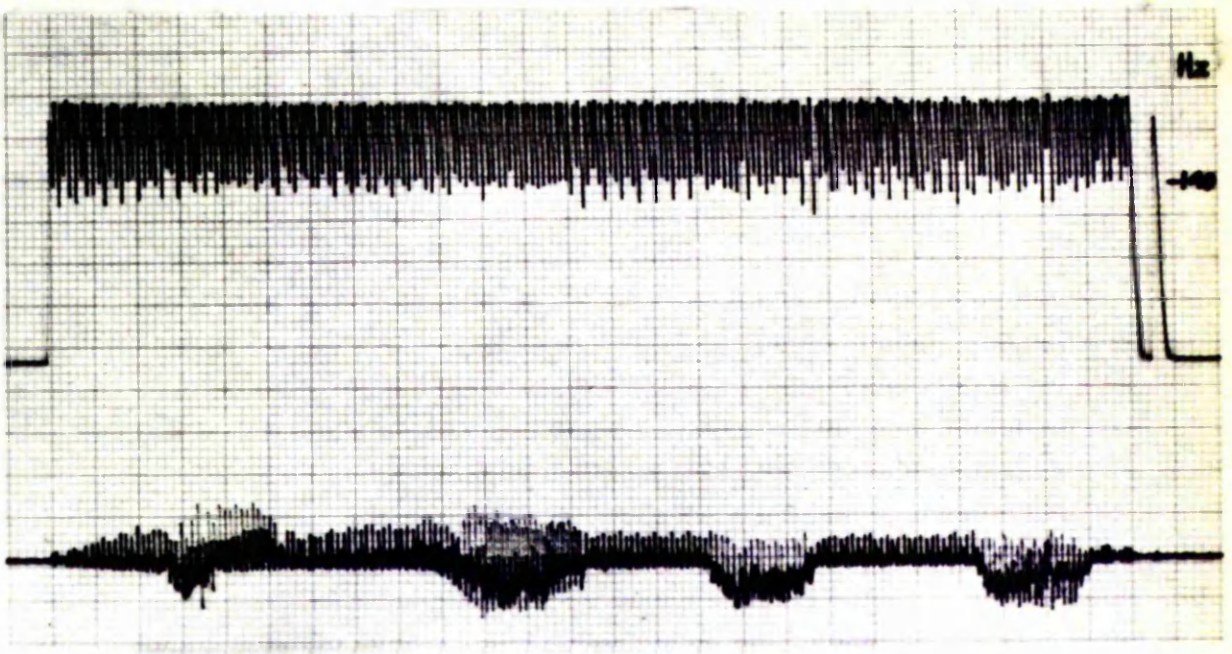


8. ánɔ



9. há rá

10. nɔ̃mlɔ nɑ̃ne



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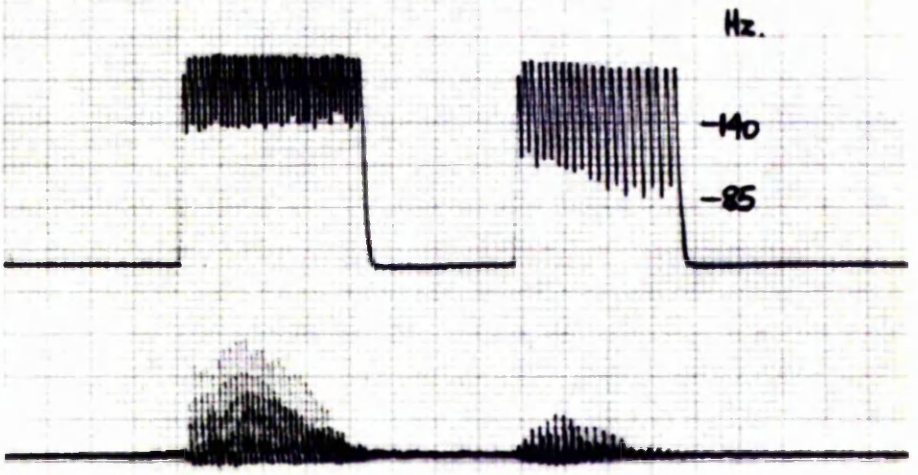
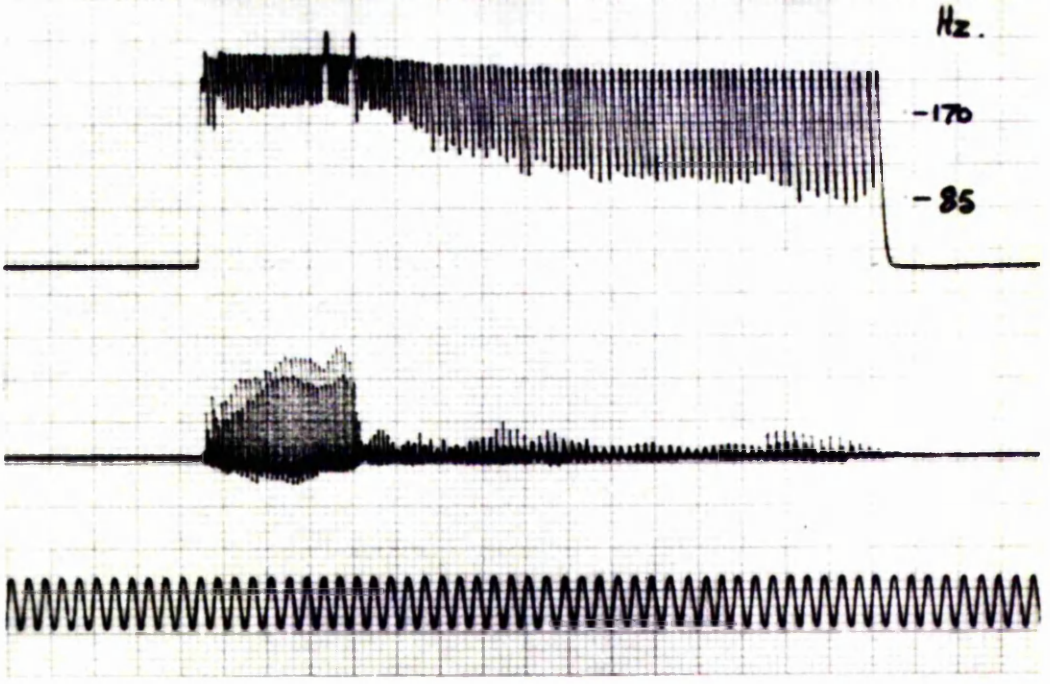
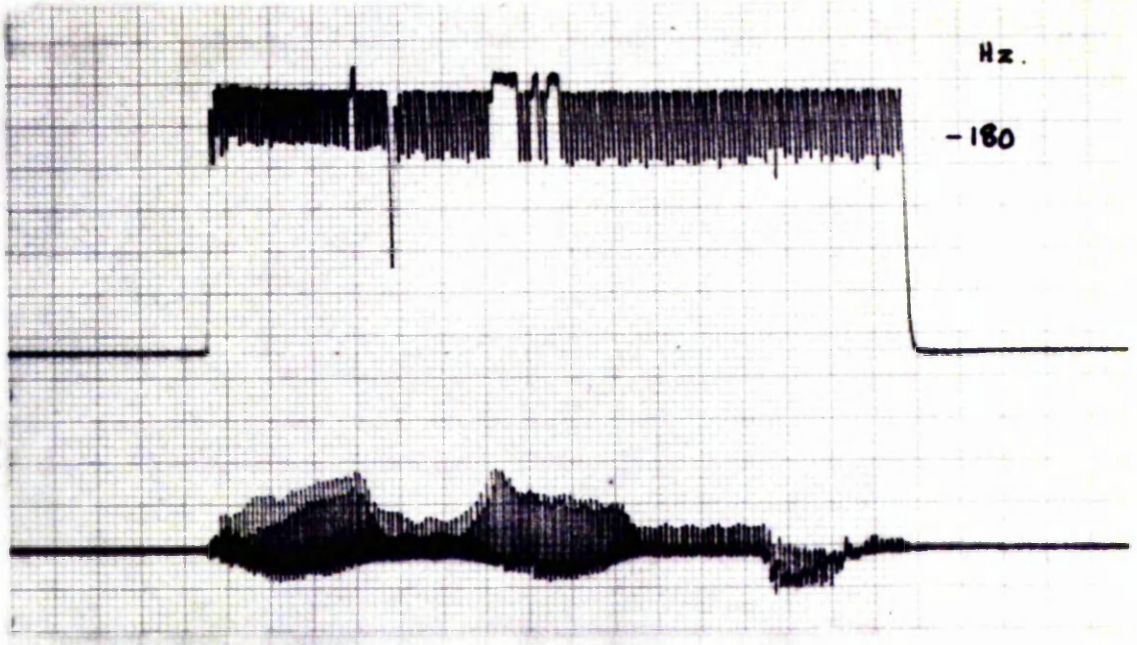
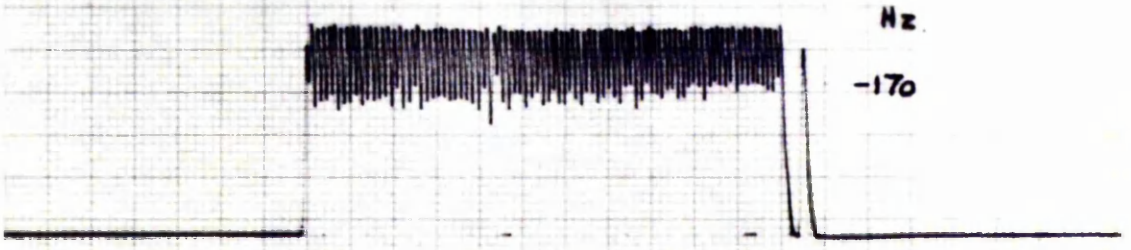


12. ó mɔ̀mɔ̀

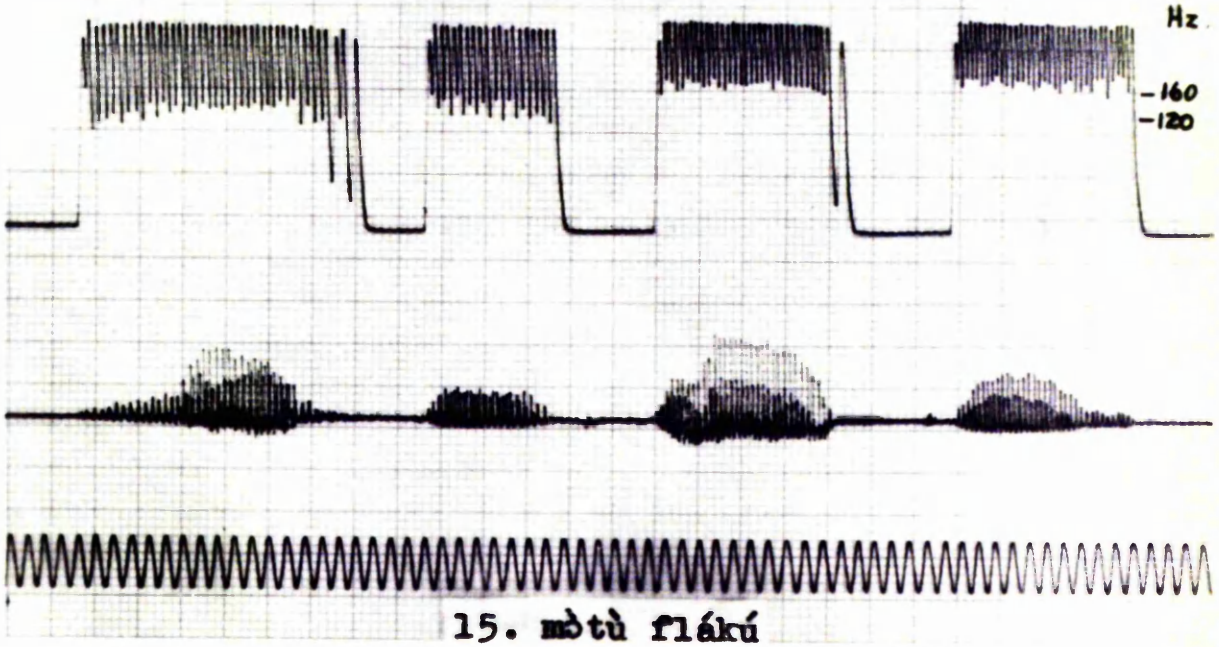




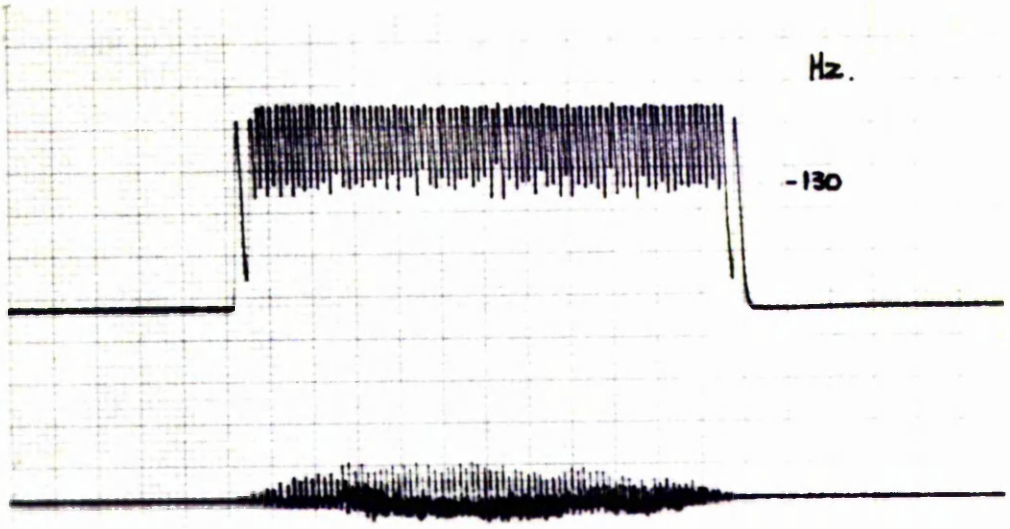
13. ó womí



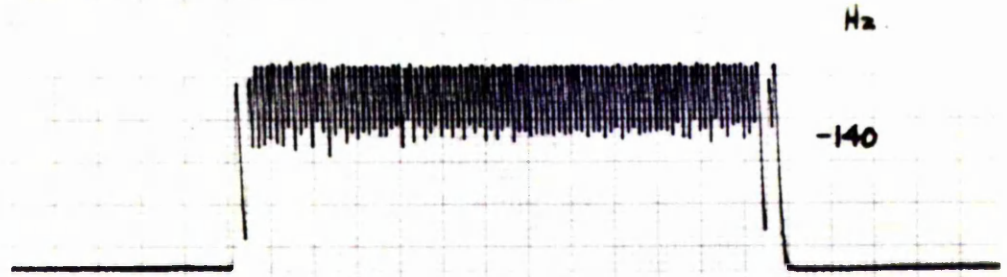
14. ta mí



15. mòtù flákú



16. mà̀ ã̀



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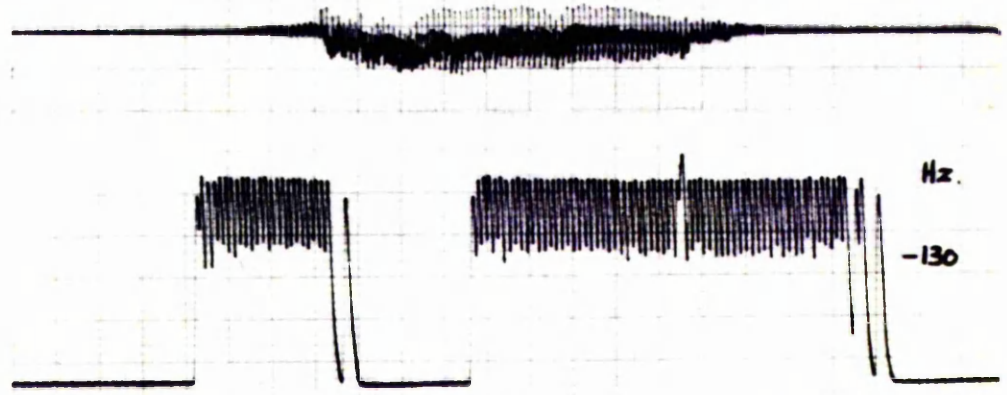
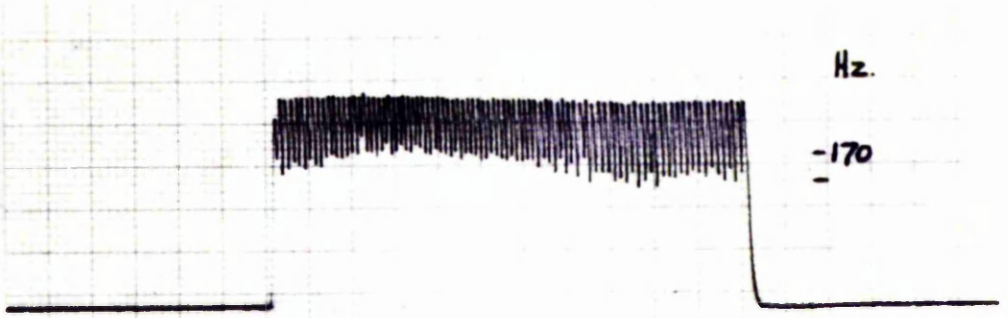
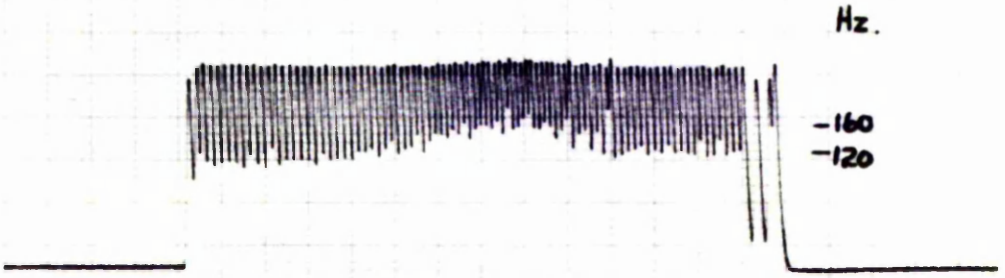


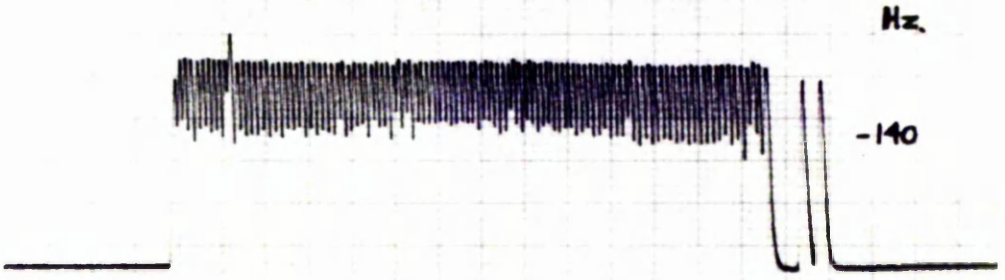
18. ɔ̀kpɔ̀ ɔ



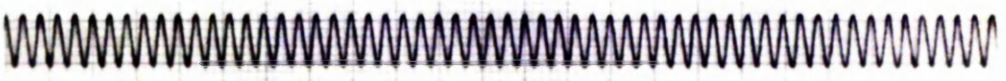
19. mā̀ ā

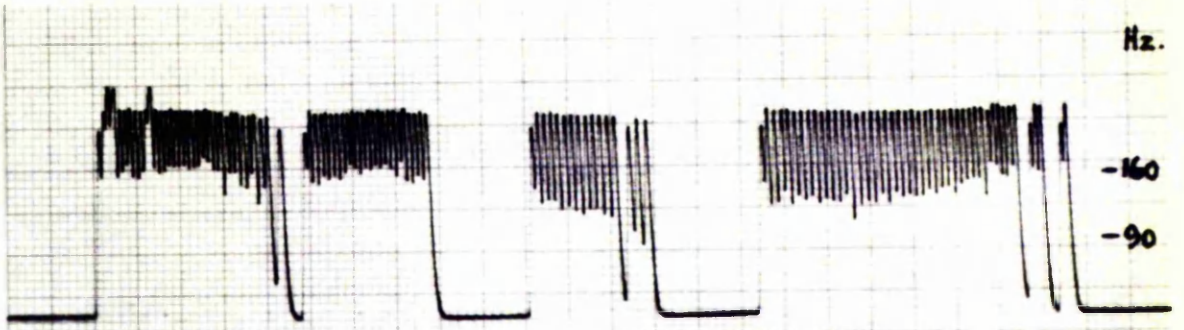


20. mā̀ nɔ

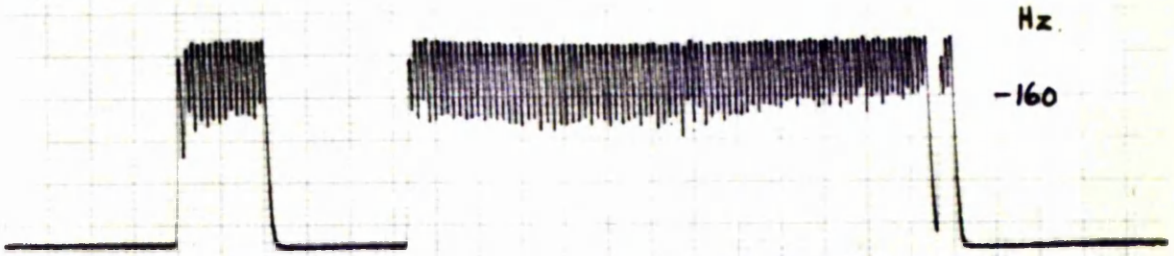


21. pɛ̀lí nɔ

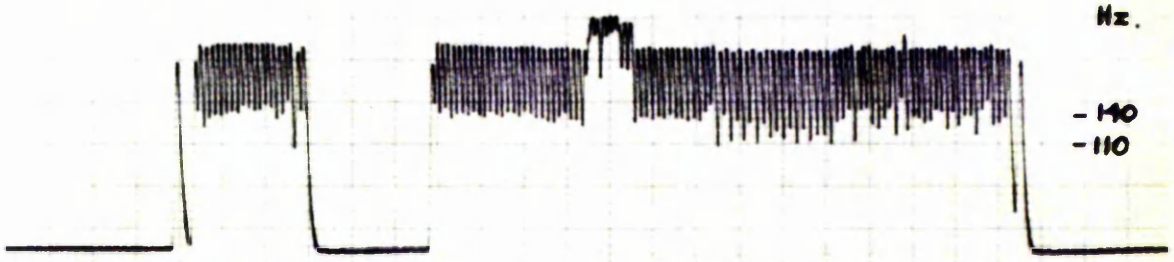




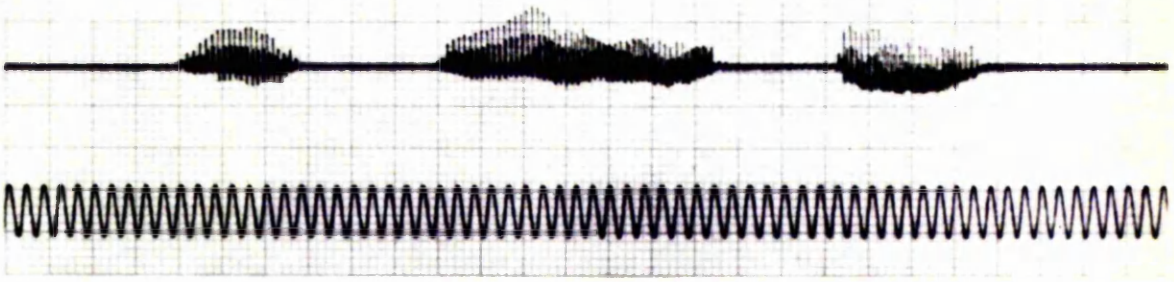
22. tédʒí pəpùé



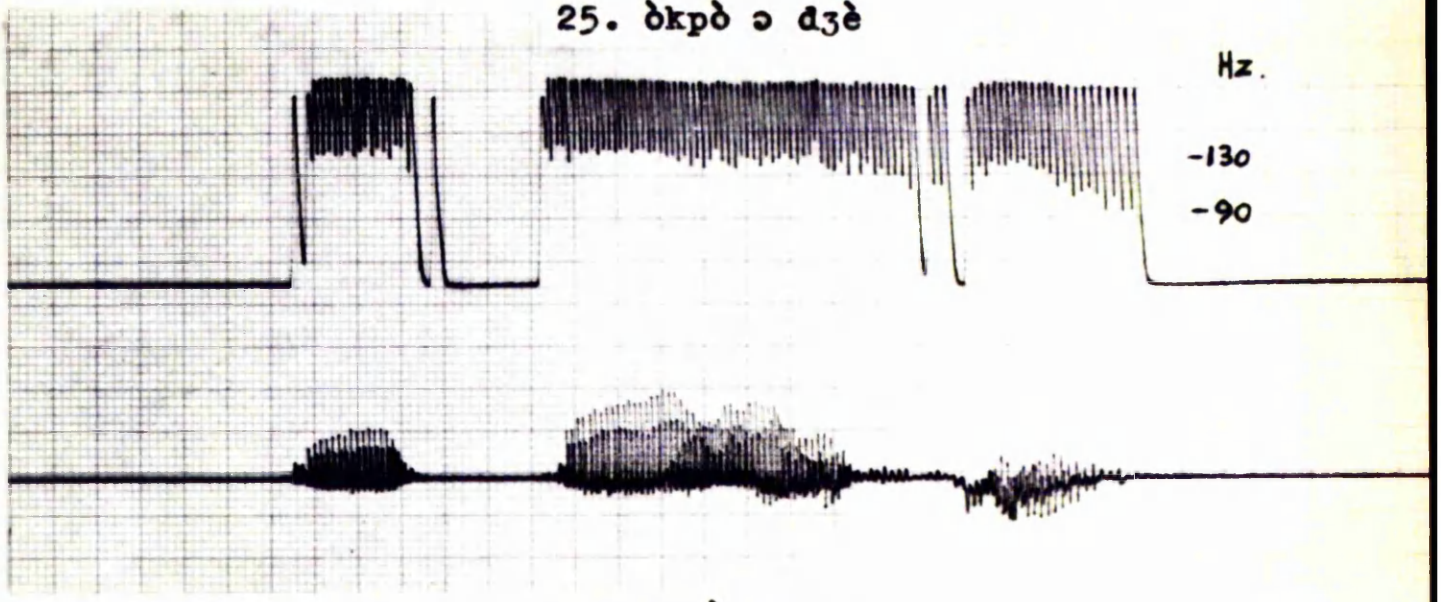
23. ɔkpɔ́ ɔ lá



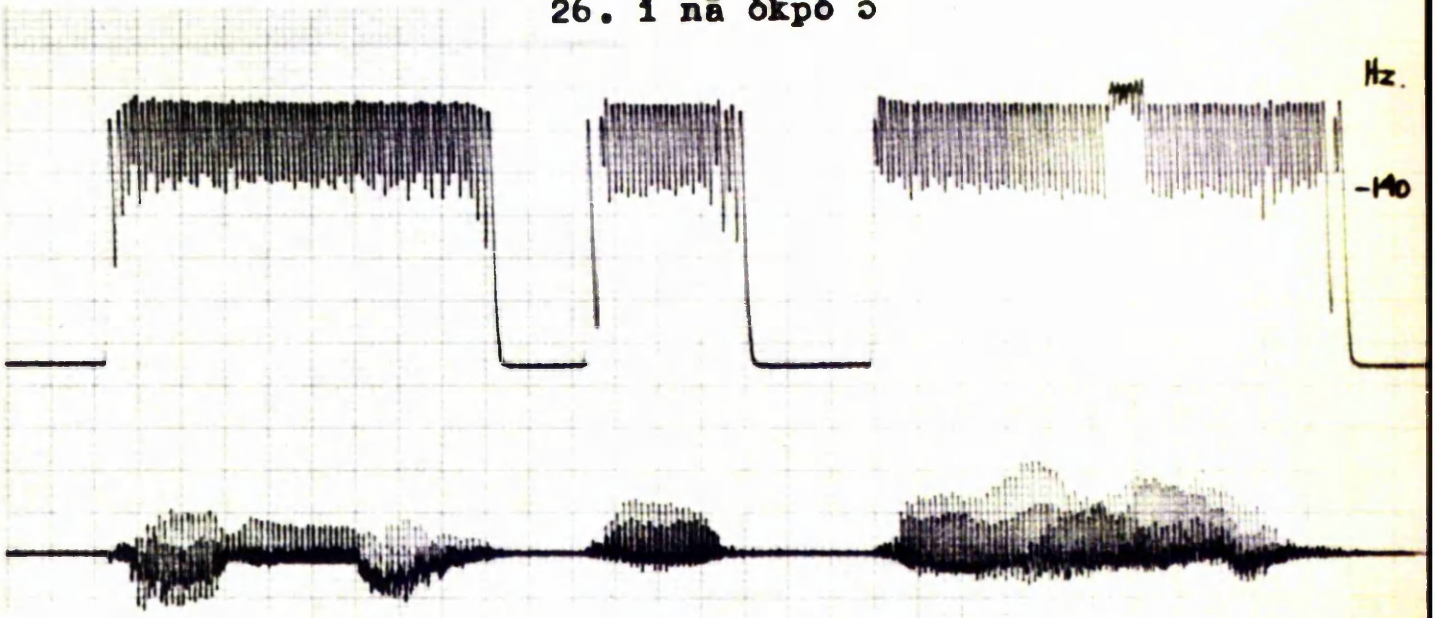
24. ɔkpɔ́ ɔ ba



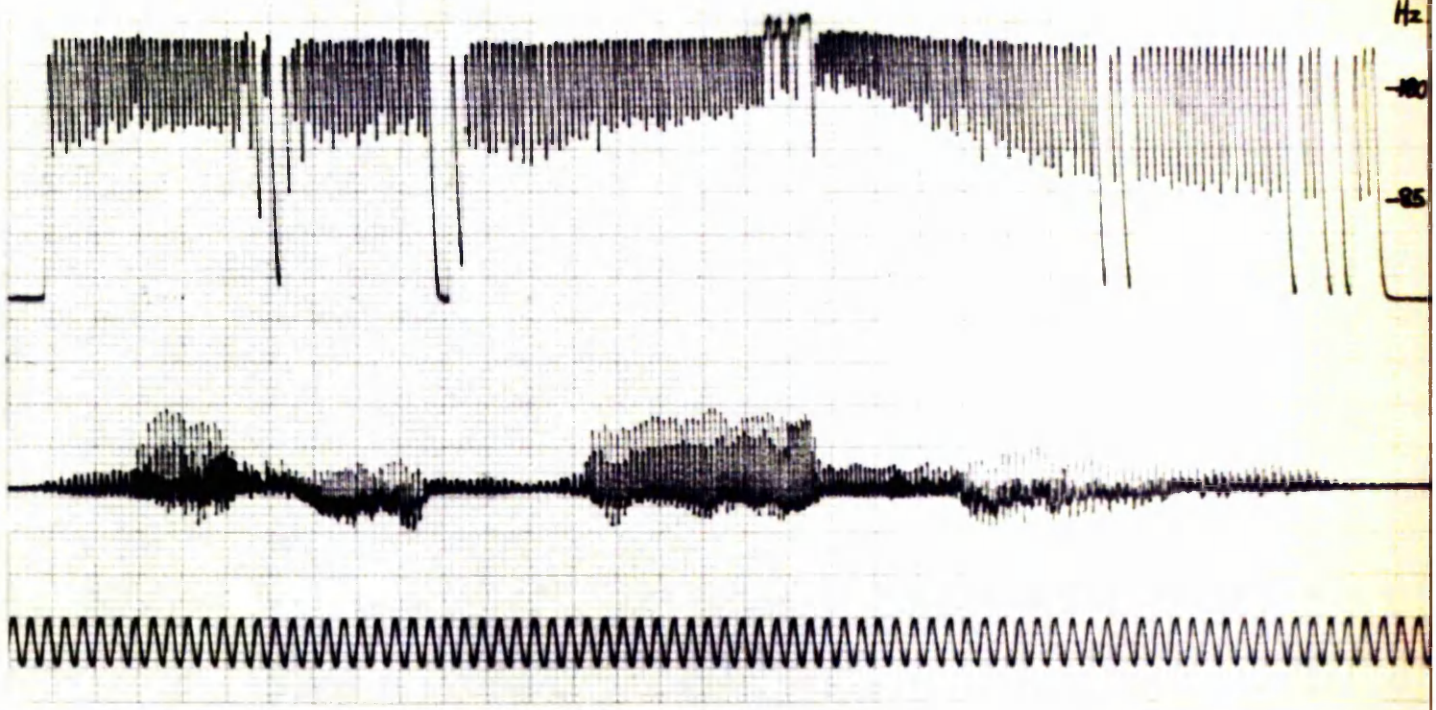
25. ɔ̀kpɔ̀ ɔ dʒɛ̀



26. ì nā̀ ɔ̀kpɔ̀ ɔ



27. mɔ̀ ɔ̀gbɔ̀ nɔ ɔ



The Palategram Figure

E.O. Apronti